St Andrew's Academy

Mathematics **Department**

COURSE 1 TEXTBOOK
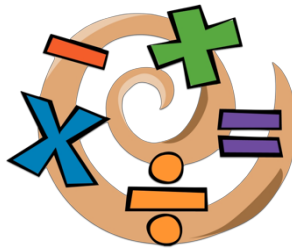
CONTENTS

St Andrew's Academy

Mathematics Department

BLOCK ONE

Number	Algebra	Integers
• Place Value (including tenths, hundredths and thousandths). • Number to words. • Add/Subtract whole numbers • Multiply/Divide whole numbers • Multiply/Divide by 10, 100 and 1000. • Multiply/Divide by multiples of 10. • Order of operations.	• Solving 1 and 2 step Equations.	• Negative number scale. • Ordering integers. • Coordinates in 4 quadrants. • Add/subtract integers. • Multiply/Divide Integers. • Integers in context.

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Examples

Workout

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Question 1:   Write these numbers in words

(a) 19   (b) 28   (c) 72   (d) 55   (e) 83   (f) 94

Question 2:   Write these numbers in figures

(a) eighteen   (b) thirty-one   (c) forty-nine

(d) fifty-two   (e) eighty-seven   (f) ninety-three

Question 3:   Write these numbers in words

(a) 105   (b) 112   (c) 140   (d) 168   (e) 271   (f) 333

(g) 498   (h) 704   (i) 620   (j) 857   (k) 985   (l) 586

Question 4:   Write these numbers in figures

(a) two hundred and one   (b) one hundred and twenty-nine

(c) six hundred and forty   (d) nine hundred and eleven

(e) four hundred and fifty-two   (f) eight hundred and seventy-five

Question 5:   Write these numbers in words

(a) 2004   (b) 3058   (c) 8020   (d) 9105   (e) 4700   (f) 2831

(g) 8349   (h) 10010   (i) 15512   (j) 23061   (k) 52724   (l) 89200

Question 6:   Write these numbers in figures

(a) five thousand, one hundred

(b) two thousand, nine hundred and five

(c) nine thousand, five hundred and thirty-seven

(d)   eight thousand and thirty

(e)   twelve thousand, two hundred and four

(f)   forty thousand and ninety–two

(g)   seventy–nine thousand, six hundred and twenty–six

Question 7:   Write these numbers in words

(a)   500,000   (b) 3,000,000   (c) 1,251,000   (d) 18,000,905

(e)   9,208,071   (f) 2,133,394   (g) 40,299,323   (h) 652,394,006

Question 8:   Write these numbers in figures

(a)   seven hundred and fifteen thousand

(b)   three hundred thousand, five hundred and twenty–nine

(c)   nine hundred and thirteen thousand, one hundred and eighty–two

(d)   seven million, five hundred and two thousand, seven hundred and nineteen

(e)   fifty million and twelve
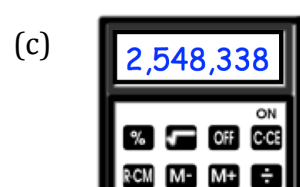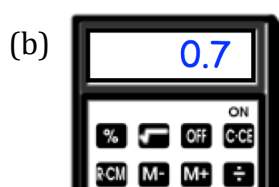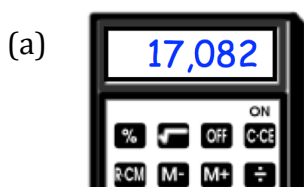
Apply

Question 1:   At a Yeovil Town football match, there are 4,137 spectators.
              Write 4,137 in words.

Question 2:   The diameter of Mars is **six thousand, seven hundred and seventy–nine**
              kilometres.
              Write six thousand, seven hundred and seventy–nine in figures.

Question 3:   Write the values shown on each calculator in words.

(a)   17,082   (b)   0.7   (c)   2,548,338

Question 4:   Maxine has attempted her homework.
Explain the mistakes she has made.

Write these numbers in words

(a) 5400

five thousand and four hundred

(b) 2915

two thousand nine hundred
and fifteen

(c) 79,032

seventy–nine thousand, thirty–two

(d) 100,408

one million, four hundred and eight

Question 5:   Write down the answer to 125 × 100 in words

Question 6:   Write down the answer to 9 ÷ 100 in words

Answers

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Place Value

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5

Question 1:   Write down the value of underlined digit in each of the numbers below

(a) 5<u>4</u>8

(b) <u>9</u>02

(c) 62<u>3</u>

(d) <u>3</u>841

(e) 87<u>9</u>02

(f) <u>4</u>8213

(g) 3<u>9</u>154

(h) 24<u>1</u>03

(i) <u>2</u>94875

(j) 9<u>4</u>0000

(k) <u>2</u>500000

(l) 49<u>7</u>0000000

(m) 0.<u>5</u>3

(n) 0.2<u>7</u>

(o) 1.39<u>5</u>

(p) 29.4<u>8</u>27

Question 2:   From each list of numbers, write down the largest number.

(a) 58, 39, 44, 62

(b) 294, 208, 198, 277

(c) 91, 103, 100, 99

(d) 807, 711, 1021, 888

(e) 5454, 5000, 899, 5118

(f) 30.3, 103, 9.98, 181

Question 3:   Write these numbers in words

(a) 5610

(b) 29052

(c) 312000

(d) 1800000

(e) 5138000

(f) 6243821

Question 4:   Write these numbers in figures

(a) four hundred and sixty–eight

(b) five thousand and twenty

(c) twelve thousand, nine hundred and two

(d) three hundred and thirty–one thousand, six hundred and seven

(e) six million

(f) nineteen million, two thousand and seven

Question 5:   Arrange in order from smallest to largest

(a) 7, 5, 9, 12, 2   (b) 13, 20, 9, 12, 14, 6

(c) 70, 80, 20, 30, 90, 10   (d) 73, 28, 45, 38, 90, 21

(e) 130, 190, 210, 70, 300   (f) 605, 66, 566, 655, 506, 65, 555

(g) 2000, 385, 8100, 2800, 888, 400

Question 6:   Place the correct sign, < or >, between the following pairs of numbers

(a)   3 ☐ 1   (b)   2 ☐ 7   (c)   8 ☐ 5

(d) 28 ☐ 21   (e) 110 ☐ 113   (f) 102 ☐ 99

(g) -3 ☐ 2   (h)   4 ☐ -1   (i) -12 ☐ -9

Apply

Question 1:   Milton is 95 miles from Leek.
               Doncastle is 102 miles from Leek.
               Which town is the greater distance from Leek?

Question 2:   Hannah took 817 seconds to complete a puzzle.
               Olly took 798 seconds to complete the same puzzle.
               Who completed the puzzle in the shortest time?

Question 3:   Arrange these temperatures in order, from lowest to highest

               18°C, 22°C, 9.5°C, 15°C, 21°C, 17°C, 2°C
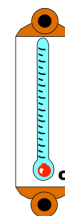
Question 4:   Write down the value of the 7 in the answer to 573 × 100

Question 5:   Using the three digits 1, 2 and 3, write down all the different three digit
               numbers.

Question 6:   Write down a number that is larger than 3.4 but smaller than 3.5

Question 7:   Here are four digits   4   8   3   5

(a)   Use two of the digits to make the largest possible two-digit number.

(b)   Use all four digits to make the largest possible number.

(c)   Use all four digits to make the smallest possible **odd** number

(d)   Use all four digits to make the four-digit number closest to 4000.

Question 8:   Here are four digits   6   3   9   7

(a)   Put one digit in each box to make the smallest possible total.

☐ ☐ **+** ☐ ☐

(b)   Write down the total

(c)   Put one digit in each box to make the largest possible total.

☐ ☐ **+** ☐ ☐

(d)   Write down the total

Answers   ✓ ✗
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Question 1:   Work out the answers to the following additions

(a) 51 + 37   (b) 27 + 21   (c) 37 + 44   (d) 84 + 19

(e) 48 + 48   (f) 39 + 21 + 43   (g) 75 + 56   (h) 93 + 84

Question 2:   Work out these additions

(a) 123 + 564   (b) 557 + 61   (c) 839 + 152   (d) 357 + 368

(e) 940 + 346   (f) 382 + 121 + 85   (g) 948 + 253   (h) 777 + 444

Question 3:   Complete these additions

(a) 4854 + 1162   (b) 4611 + 3270   (c) 5792 + 4437   (d) 4780 + 1590

(e) 939 + 1103   (f) 2385 + 5584   (g) 8888 + 4424   (h) 5118 + 3054 + 1112

Question 4:   Work out

(a) 48832 + 14503   (b) 39104 + 22934   (c) 8383 + 11385 + 7673 + 711

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Question 1:   Daniel buys an apple for 39p and a banana for 27p. How much does he pay in
               total?
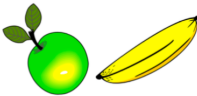
Question 2:   James has 86 marbles and Hannah has 95 marbles. How many marbles do they
               have altogether?

Question 3: The distances, in kilometres, between four towns are shown on the map.

Leek
49   57   Dale
54
Milton
Foxville
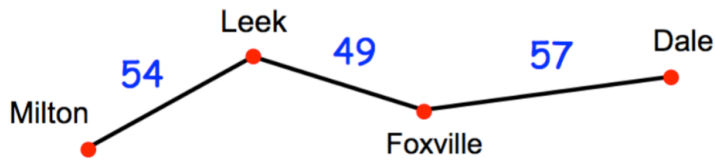
(a) Work out the distance between Leek and Dale.
(b) Work out the distance between Milton and Dale

Question 4:   In year 7 there are 238 students.
In year 8 there are 225 students.
In year 9 there are 233 students.

How many students are there in total in years 7, 8 and 9?

Question 5:   Copy these additions into your book and fill in the missing numbers.

(a)

```
   5  4
+  3  □
_____
   □  9
```

(b)

```
   4  □
+  □  4
_____
   7  2
```

(c)

```
   5  □  □
+  □  7  1
_____
   9  3  4
```

Question 6:   Can you spot any mistakes in the questions below?

```
     8  5  9
+   ,1 ,7  6
_____
  1  0  2  5
```

```
     2  8  2
     3  9  9
+   ,6 ,7  5
_____
  1  2  5  6
```

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Question 1: Work out the answers to the following subtractions

(a) 68 – 32   (b) 98 – 21   (c) 51 – 24   (d) 70 – 38

(e) 46 – 28   (f) 81 – 43   (g) 94 – 67   (h) 85 – 56

Question 2: Work out these subtractions

(a) 785 – 512   (b) 548 – 26   (c) 839 – 152   (d) 557 – 319

(e) 940 – 236   (f) 888 – 192   (g) 603 – 381   (h) 800 – 118

Question 3: Complete these subtractions

(a) 4854 – 1132   (b) 4811 – 1570   (c) 5792 – 4437   (d) 4781 – 1952

(e) 7925 – 1176   (f) 8080 – 3131   (g) 8132 – 7569   (h) 9000 – 3941

Question 4: Work out

(a) 48832 – 14503   (b) 39104 – 22934   (c) 78383 – 11385

Apply

Question 1: Sarah buys an apple for 41p and a banana for 27p.
How much more expensive is an apple than a banana?
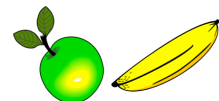
Question 2: Kelly has 76 marbles and Hannah has 102 marbles.
How many more marble does Hannah have than Kelly?

Question 3: At a football match there are 2942 Rovers fans and 9381 City fans.
How many more fans did City have?

Question 4:   Theo wants to buy a laptop that costs £425. Theo has saved £267 so far.
How much more money does Theo need to save?

Question 5:   Copy these subtractions into your book and fill in the missing numbers.

(a)   (b)   (c)

$$
\begin{array}{r}
8\ 7 \\
-\ 5\ \square \\
\hline
\square\ 3
\end{array}
$$

$$
\begin{array}{r}
5\ 4\ 7 \\
-\ 1\ \square\ \square \\
\hline
\square\ 6\ 9
\end{array}
$$

$$
\begin{array}{r}
\square\ 5\ \square \\
-\ 1\ 2\ 6 \\
\hline
6\ \square\ 5
\end{array}
$$

Question 6:   Can you spot any mistakes in the questions below?

$$
\begin{array}{r}
6\ 9\ 8 \\
-\ 1\ 4\ 9 \\
\hline
5\ 5\ 1
\end{array}
$$

$$
\begin{array}{r}
6\ 0\ 0 \\
-\ 1\ 0\ 7 \\
\hline
4\ 0\ 3
\end{array}
$$

Question 7:   This table shows the lengths of three rivers.

How much longer is the Nile than the
combined lengths of the other two rivers?

River	Length in kilometres
Nile	6,853
Thames	346
Mississippi	3,734

Question 8:   Grace is saving money for a new guitar.

The guitar costs £175
In January she saved £36.24
In February she saved £14.17

Work out how much more money Grace needs to save.

Question 9:   Work out the difference between 234,789 and 502,113

Question 10: Write down the number that is twenty thousand **less than** one million

Question 11: This table shows the number of people living in various cities in England.

City	Population
Brighton	273,369
Preston	190,687
Birmingham	1,224,136
Telford	166,641

How many more people live in Birmingham than Preston?

Answers
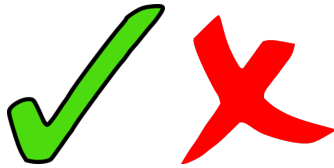
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Question 1: Answer the following multiplications

(a) 3 x 3   (b) 5 x 4   (c) 6 x 2   (d) 3 x 10

(e) 3 x 5   (f) 2 x 9   (g) 1 x 1   (h) 7 x 2

(i) 1 x 4   (j) 3 x 2   (k) 5 x 10   (l) 2 x 8

(m) 7 x 5   (n) 1 x 8   (o) 3 x 6   (p) 3 x 9

(q) 5 x 9   (r) 5 x 5   (s) 7 x 10   (t) 10 x 9

(u) 2 x 11   (v) 4 x 3   (w) 3 x 7   (x) 10 x 10

Question 2: Work out each of the following

(a) 4 x 8   (b) 9 x 10   (c) 6 x 6   (d) 7 x 8

(e) 9 x 6   (f) 8 x 6   (g) 9 x 7   (h) 9 x 9

(i) 7 x 6   (j) 9 x 4   (k) 11 x 8   (l) 6 x 8

(m) 5 x 6   (n) 7 x 7   (o) 8 x 9   (p) 8 x 8

(q) 12 x 3   (r) 3 x 8   (s) 5 x 12   (t) 11 x 11

(u) 6 x 9   (v) 12 x 12   (w) 0 x 8   (x) 12 x 11

Question 3: Work out each of the following

(a) 30 ÷ 10   (b) 10 ÷ 5   (c) 8 ÷ 4   (d) 9 ÷ 3

(e) 25 ÷ 5   (f) 15 ÷ 3   (g) 21 ÷ 7   (h) 18 ÷ 6

(i) 24 ÷ 6   (j) 30 ÷ 5   (k) 40 ÷ 4   (l) 16 ÷ 4

(m) 49 ÷ 7   (n) 63 ÷ 9   (o) 64 ÷ 8   (p) 54 ÷ 6

(q) 72 ÷ 8   (r) 56 ÷ 7   (s) 48 ÷ 8   (t) 36 ÷ 6

Apply

Question 1:   Martin works for 7 hours and is paid £8 per hour. How much is he paid?

Question 2:   Russell is given £4 pocket money each week.
He is saving for a game that costs £32.
How many weeks will it take Russell to save enough money to buy the game?

Question 3:   A carton holds 6 eggs.
How many eggs are there in 7 full boxes?

Question 4:   Harry earns £9 per hour and works 7 hours.
Carly earns £11 per hour and works 6 hours.
Who earns more money and by how much?

Question 5:   Gregory says "when an odd number is multiplied by an odd number, the answer
is always odd."

Is Gregory correct?

Question 6:   A small bag of doughnuts contains 5 doughnuts.
A medium bag of doughnuts contains 9 doughnuts.
A large bag of doughnuts contains 12 doughnuts.

Mr Jones buys 9 small bags of doughnuts.
Miss Jenkins buys 7 medium bags of doughnuts.
Mrs Hughes buys 4 large bags of doughnuts.

(a) Who has bought the most doughnuts?

(b) How many doughnuts did they buy in total?

Answers
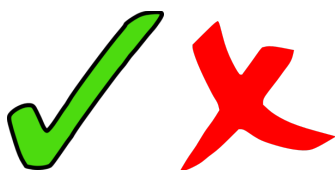
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Question 1: Work out the following multiplications

(a) 32 × 3   (b) 15 × 5   (c) 23 × 4   (d) 19 × 3   (e) 47 × 2

(f) 6 × 21   (g) 35 × 5   (h) 59 × 4   (i) 7 × 28   (j) 62 × 6

(k) 74 × 5   (l) 53 × 9   (m) 7 × 66   (n) 83 × 8   (o) 96 × 9

Question 2: Work out the following multiplications

(a) 223 × 2   (b) 132 × 3   (c) 124 × 4   (d) 5 × 135

(e) 403 × 6   (f) 263 × 6   (g) 365 × 7   (h) 308 × 9

(i) 6 × 555   (j) 758 × 4   (k) 642 × 8   (l) 383 × 7

(m) 798 × 9   (n) 1294 × 5   (o) 2074 × 6   (p) 8 × 4868

Apply

Question 1: Work out the product of 18 and 4

Question 2: How many days are there in 35 weeks?

Question 3: Mr Burns wants to buy every student in Year 11 a doughnut.
There are 120 students in Year 11.
Mr Burns buys 26 bags of doughnuts and there are 5 doughnuts in a bag.
Has Mr Burns bought enough doughnuts?

Question 4: Claudia saves £8 every month.
How much money does she save over 2 years?

Question 5: Find the area of this rectangle.

47cm
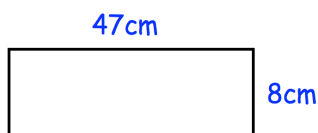
8cm

Question 6:   At a wedding, there are 16 tables.
15 tables seat 6 guests
1 table will seat 8 guests

Work out the total number of chairs needed.

Question 7:   Here is part of Olive's gas bill.
Each unit of gas costs 9p.

| Old reading | 1695 units |
| New reading | 2104 units |

Work out how much Olive will have to pay.

Question 8:   Leanne works in a cinema.
She is paid £7 per hour for the first 120 hours she works each month.
Leanne is paid an overtime rate of £9 per hour for any additional hours.
In September she works 138 hours.
Work out how much Leanne is paid.

Question 9:   Below are two boxes that contain numbers.

Box 1   Box 2

9   2   33
3   7   25
4   63   94

Choose one number from each box that multiply together to give an answer
between 400 and 500.

Question 10: Nicole owns a clothes shop.
She buys 8 jackets for £73 each.
Nicole sells the jackets for £125 each.

Work out her profit.

Question 11: 800 people attended a charity football match between Ballymena United
and AFC Telford.
Adult tickets are £9 and child tickets are £4.
Out of the 800 people at the match, 155 are children

How much money was raised for charity?

Question 12: Mr and Mrs Neill book a 10 day holiday in July.
They have three children.
Work out the total cost.

CORBETTMATHS HOLIDAYS

Price per day

Dates	Per adult	Per child
1ˢᵗ March to 30ᵗʰ April	£23	£9
1ˢᵗ June to 31ˢᵗ August	£26	£13

There is a £15 booking charge for every holiday

Question 13: Bertie wants to buy a table and six chairs.
Where should he buy them?

Furniture World
Table £180
Each chair £45

Furniture Land
Table Free if you buy 6 chairs
Each chair £77

Home of Furniture
Table £194
Two chairs £82

Question 14: Place the digits 4, 5, 6 and 8 into the boxes below so that

(a) You find the largest possible answer.
(b) You find the smallest possible answer

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Question 15: Donald is buying ribbon to wrap his Christmas presents.
The ribbon costs £1.89 per metre.
He buys 7 metres of ribbon.
Work out the total cost.

Answers

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Question 1: Work out the answers to the following divisions

(a)   84 ÷ 4   (b)   52 ÷ 2   (c)   72 ÷ 3   (d)   75 ÷ 5

(e)   54 ÷ 3   (f)   68 ÷ 4   (g)   90 ÷ 5   (h)   84 ÷ 6

(i)   91 ÷ 7   (j)   81 ÷ 3   (k)   87 ÷ 3   (l)   92 ÷ 4

Question 2: Work out the answers to the following divisions

(a)   236 ÷ 2   (b)   156 ÷ 3   (c)   108 ÷ 4   (d)   235 ÷ 5

(e)   260 ÷ 4   (f)   222 ÷ 3   (g)   545 ÷ 5   (h)   312 ÷ 6

(i)   438 ÷ 6   (j)   171 ÷ 9   (k)   584 ÷ 8   (l)   553 ÷ 7

(m)   981 ÷ 9   (n)   856 ÷ 4   (o)   801 ÷ 9   (p)   406 ÷ 7

Question 3: Work out the answers to the following divisions

(a)   2735 ÷ 5   (b)   3312 ÷ 4   (c)   2664 ÷ 3   (d)   6540 ÷ 5

(e)   3360 ÷ 7   (f)   4902 ÷ 6   (g)   7128 ÷ 9   (h)   9020 ÷ 5

(i)   8208 ÷ 8   (j)   7500 ÷ 6   (k)   15462 ÷ 3   (l)   24353 ÷ 7

Question 4: Work out each of the following

(a)   154 ÷ 11   (b)   192 ÷ 12   (c)   195 ÷ 13   (d)   345 ÷ 15

(e)   374 ÷ 22   (f)   416 ÷ 16   (g)   385 ÷ 11   (h)   648 ÷ 12

(i)   1150 ÷ 25   (j)   805 ÷ 35   (k)   1196 ÷ 52   (l)   630 ÷ 18

(m)   5580 ÷ 90   (n)   2520 ÷ 105   (o)   1755 ÷ 65   (p)   2904 ÷ 33

Question 5: Work out each of the following.
Give each answer as a decimal.

(a) $82 \div 4$ (b) $75 \div 6$ (c) $12 \div 5$ (d) $4 \div 5$

(e) $88 \div 5$ (f) $118 \div 8$ (g) $174 \div 12$ (h) $745 \div 20$

(i) $3406 \div 8$ (j) $4268 \div 6$ (k) $8519 \div 14$ (l) $1854 \div 24$

Apply

Question 1: A toy costs £6.
Over a week, a shop makes £162 from selling the toy.
How many toys were sold?
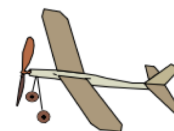
Question 2: A group of 3 friends take a journey in a taxi.
The total cost of the journey is £72.
The friends share the cost equally.
How much does each person pay?

Question 3: A bookshelf in a classroom is 112cm long.
A teacher has 30 mathematics textbooks, each 4cm wide.

(a) Can the teacher place all 30 textbooks on the shelf?
(b) What is the maximum number of textbooks that will fit on the shelf?

Question 4: A journey lasts 119 days.
How many weeks is this?

Question 5: Sally is paid £8 per hour.
In one week she is paid £264.
How many hours did Sally work?

Question 6: A school has 5 year groups and 835 students in total.
Each year group has an equal number of students.
How many students are in each year group?

Question 7: A group of 9 friends go on a coach tour.
The total cost for the tour is £648.
Work out the cost per person.
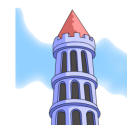
Question 8: The product of Jack's age and Florence's age is 266.
Jack is 14 years old.
How old is Florence?

Question 9: At a conference there are 621 people.
Each table seats 8 people.
How many tables are needed?

Question 10: Daisy is buying rulers.
She has £10.
Each ruler costs 74p
Daisy buys as many rulers as she can.

(a) How many rulers does Daisy buy?
(b) How much change should Daisy receive?

Question 11: Miss Jenkins has 18 bags of sweets.
Each bag contains 30 sweets.
Miss Jenkins shares as many sweets as possible equally among the 16 students in her class.

(a) How many sweets does each student receive?
(b) How many sweets are left over?

Question 12: Harry hires a car from Holiday Cars for 3 days.
His total bill was £204.
How many miles did Harry drive?

Holiday Cars

£45 per day
20p per mile

Question 13: Leah bought a new car costing £18,000
She paid a deposit of £2,000.
Leah paid the rest of the money over 50 equal monthly payments.
How much was each monthly payment?

Question 14: James hired a holiday cottage for 7 days for £406
Ben hires the same cottage, at the same price per day, for 10 days.
How much will this cost Ben?

Question 15: The product of three numbers is 1001.
The first two numbers are 7 and 11.
What is the third number?

Question 16: There are 1560 sweets in a tub.
Katherine and her friends share the sweets equally.
Each person receives 65 sweets.
How many friends does Katherine have?

Question 17: A theatre has 28 seats in each row.
There are 1036 seats in total.
How many rows are there?

Answers

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Question 1:   Work out each of the following multiplications

(a) 3 × 10   (b) 8 × 10   (c) 12 × 10   (d) 16 × 10

(e) 25 × 10   (f) 42 × 10   (g) 78 × 10   (h) 20 × 10

(i) 90 × 10   (j) 112 × 10   (k) 203 × 10   (l) 140 × 10

(m) 529 × 10   (n) 400 × 10   (o) 1925 × 10   (p) 3500 × 10

(q) 2710 × 10   (r) 50000 × 10   (s) 6204 × 10   (t) 99099 × 10

Question 2:   Work out each of the following multiplications

(a) 0.2 × 10   (b) 0.8 × 10   (c) 0.1 × 10   (d) 1.3 × 10

(e) 5.8 × 10   (f) 15.1 × 10   (g) 20.5 × 10   (h) 357.4 × 10

(i) 0.06 × 10   (j) 0.14 × 10   (k) 0.42 × 10   (l) 3.07 × 10

(m) 0.009 × 10   (n) 0.0053 × 10   (o) 0.105 × 10   (p) 0.0381 × 10

(q) 3.4905 × 10   (r) 0.25801 × 10   (s) 400.05 × 10   (t) 122.08 × 10

Question 3:   Work out each of the following multiplications

(a) 4 × 100   (b) 7 × 100   (c) 15 × 100   (d) 28 × 100

(e) 30 × 100   (f) 90 × 100   (g) 165 × 100   (h) 593 × 100

(i) 520 × 100   (j) 203 × 100   (k) 400 × 100   (l) 100 × 100

(m) 2000 × 100   (n) 3902 × 100   (o) 2030 × 100   (p) 40001 × 100

Question 4:   Work out each of the following multiplications

(a) 0.3 × 100   (b) 0.9 × 100   (c) 0.02 × 100   (d) 0.05 × 100

(e) 0.15 × 100   (f) 0.23 × 100   (g) 5.8 × 100   (h) 4.13 × 100

(i) 3.08 × 100   (j) 0.822 × 100   (k) 0.606 × 100   (l) 0.004 × 100

(m) 320.4 × 100   (n) 2.3802 × 100   (o) 0.00351 × 100   (p) 105.1 × 100

Question 5:   Work out each of the following multiplications

(a) 5 × 1000   (b) 9 × 1000   (c) 18 × 1000   (d) 45 × 1000

(e) 40 × 1000   (f) 70 × 1000   (g) 200 × 1000   (h) 595 × 1000

(i) 710 × 1000   (j) 909 × 1000   (k) 900 × 1000   (l) 1000 × 1000

(m) 8000 × 1000   (n) 5800 × 1000   (o) 5040 × 1000   (p) 60000 × 1000

Question 6:   Work out each of the following multiplications

(a) 0.2 × 1000   (b) 0.8 × 1000   (c) 1.4 × 1000   (d) 8.3 × 1000

(e) 0.06 × 1000   (f) 0.007 × 1000   (g) 17.5 × 1000   (h) 30.9 × 1000

(i) 4.45 × 1000   (j) 0.48 × 1000   (k) 0.033 × 1000   (l) 0.0081 × 1000

(m) 0.403 × 1000   (n) 0.2002 × 1000   (o) 1.0934 × 1000   (p) 93.0491 × 1000

Question 7:   Work out each of the following multiplications

(a) 76 × 10   (b) 230 × 100   (c) 3 × 1000   (d) 52 × 1000

(e) 6 × 100   (f)   352 × 10   (g) 4.5 × 100   (h) 0.9 × 10

(i) 25 × 100   (j) 8001 × 1000   (k) 4.1 × 1000   (l) 0.75 × 10

(m) 3.5 × 100   (n) 50.89 × 100   (o) 0.018 × 100   (p) 0.679 × 1000

(q) 0.888 × 10   (r) 3094.5 × 100   (s) 255.21 × 10   (t) 39.001 × 1000

(u) 3.005 × 10   (v) 0.005 × 100   (w) 8900 × 100   (x) 0.011 × 1000

(y) 94.6 × 100   (z) 4.99 × 1000

Apply

Question 1:   Natalie saves £100 a month towards a new car.
How much money will she have saved after 11 months?

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Question 2: A box contains 10 eggs.
Hilary needs 68 eggs.
How many boxes of eggs should she buy?

Question 3: A ticket for a charity concert costs £10.
231 tickets are sold.
How much money is raised for charity?

Question 4: A box of drawing pins contains 100 pins.
How many drawing pins are there in 40 boxes?

Question 5: (a) How many years are there in 15 centuries?
(b) How many years are there in 8 decades?
(c) How many years are there in 4 millennia?

Question 6: The decagon below is regular, which means that all sides are the same length.
Work out the perimeter of the decagon.

3.8cm
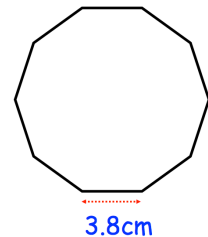
Question 7: Shown below are some questions and answers.
Match each question and correct answer.
The first one has been completed for you.

0.032 x 10	32
3.2 x 10	0.32
0.32 x 10	3.2
0.32 x 1000	3200
32 x 100	320

Question 8: Write down the value of the 2 in the answer to 7.025 × 1000

Question 9: A coffee shop sells cups of coffee in 0.3 litre cups.
In one week they sell 10000 cups of coffee.
How many litres of coffee do they sell in one week?

Answers

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23

Examples

Workout

Click here

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Question 1:   Work out each of the following divisions

(a) 30 ÷ 10   (b) 90 ÷ 10   (c) 120 ÷ 10   (d) 250 ÷ 10

(e) 800 ÷ 10   (f) 380 ÷ 10   (g) 4000 ÷ 10   (h) 1600 ÷ 10

(i) 9 ÷ 10   (j) 2 ÷ 10   (k) 1 ÷ 10   (l) 7 ÷ 10

(m) 72 ÷ 10   (n) 15 ÷ 10   (o) 93 ÷ 10   (p) 219 ÷ 10

(q) 3414 ÷ 10   (r) 109 ÷ 10   (s) 2015 ÷ 10   (t) 870 ÷ 10

(u) 0.6 ÷ 10   (v) 0.3 ÷ 10   (w) 0.15 ÷ 10   (x) 0.08 ÷ 10

Question 2:   Work out each of the following divisions

(a) 200 ÷ 100   (b) 500 ÷ 100   (c) 900 ÷ 100   (d) 1400 ÷ 100

(e) 4800 ÷ 100   (f) 6200 ÷ 100   (g) 3000 ÷ 100   (h) 1000 ÷ 100

(i) 17000 ÷ 100   (j) 53000 ÷ 100   (k) 2810 ÷ 100   (l) 9145 ÷ 100

(m) 180 ÷ 100   (n) 375 ÷ 100   (o) 520 ÷ 100   (p) 70 ÷ 100

(q) 40 ÷ 100   (r) 17 ÷ 100   (s) 5 ÷ 100   (t) 2 ÷ 100

(u) 2.9 ÷ 100   (v) 0.8 ÷ 100   (w) 0.35 ÷ 100   (x) 4.2 ÷ 100

Question 3:   Work out each of the following divisions

(a) 4000 ÷ 1000   (b) 7000 ÷ 1000   (c) 16000 ÷ 1000   (d) 86000 ÷ 1000

(e) 50000 ÷ 1000   (f) 370000 ÷ 1000   (g) 1900 ÷ 1000   (h) 4250 ÷ 1000

(i) 5833 ÷ 1000   (j) 900 ÷ 1000   (k) 820 ÷ 1000   (l) 41 ÷ 1000

(m) 2 ÷ 1000   (n) 13 ÷ 1000   (o) 9 ÷ 1000   (p) 0.3 ÷ 1000

(q) 1.55 ÷ 1000   (r) 0.51 ÷ 1000   (s) 0.02 ÷ 1000   (t) 3.08 ÷ 1000

(u) 67000000 ÷ 1000   (v) 0.045 ÷ 1000

Question 4: Work out each of the following divisions

(a) $56 \div 10$

(b) $48000 \div 100$

(c) $3 \div 1000$

(d) $52 \div 1000$

(e) $6 \div 100$

(f) $312 \div 10$

(g) $4.5 \div 100$

(h) $0.9 \div 10$

(i) $25 \div 100$

(j) $8001 \div 1000$

(k) $4.1 \div 1000$

(l) $0.75 \div 10$

(m) $3.5 \div 100$

(n) $50.89 \div 100$

(o) $0.018 \div 100$

(p) $0.679 \div 1000$

(q) $0.888 \div 10$

(r) $3094.5 \div 100$

(s) $255.21 \div 10$

(t) $39.001 \div 1000$

Apply

Question 1: Vicky saves £10 each week.
She wants to buy a violin that costs £180
How many weeks will it take Vicky to save enough money?

Question 2: Barry prints booklets that each have 100 pages.
In total, he prints 6000 pages.
How many booklets did Barry print?

Question 3: A box of staples contains 1000 staples.
A secretary wants to order 3000000 staples.
How many boxes of staples should they order?

Question 4: A decagon has 10 sides.
The decagon below is regular, which means that all sides
are the same length.
Work out the length of each side of the decagon.

Perimeter = 48cm

?
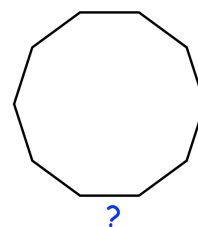
Question 5: A bakery makes 2600 cupcakes in a week.
The cupcakes are placed into boxes of 10.
Each box of cupcakes is sold for £3.
How much money does the bakery make for selling the cupcakes?

Question 6: Work out the missing numbers

(a) $\boxed{} \times 10 = 0.009$

(b) $\boxed{} \times 100 = 0.53$

Answers

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25

Corbett
maths

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Question 1:   Work out

(a) 7 + 2 x 3   (b) 9 + 4 x 2   (c) 10 + 2 x 2   (d) 18 + 4 ÷ 2

(e) 20 − 5 x 2   (f) 8 − 2 x 3   (g) 21 − 9 ÷ 3   (h) 100 − 40 x 2

(i) 16 ÷ 1 − 3   (j) 5 + 5 x 5   (k) 13 − 7 ÷ 1   (l) 7 x 6 − 4

(m) 9 + 3 − 2   (n) 20 − 5 + 6   (o) 21 − 17 + 4   (p) 30 x 4 ÷ 2

(q) (7 + 7) ÷ 2   (r) 35 − (9 + 3)   (s) 40 x (2 + 3)   (t) 60 ÷ (1 + 5)

(u) 15 ÷ (3 + 2)   (v) 9 x (7 + 4)   (w) 90 ÷ (52 − 7)   (x) (8 + 9) x 3

(y) 10 + 5 + 3 x 3   (z) 100 − 6 + 2 x 3

Question 2:   Work out

(a) $5 − 2^2$ (b) $7 + 3^2$ (c) $9^2 + 1$ (d) $6^2 − 5^2$

(e) $(7 − 2)^2$ (f) $(4 + 3)^2$ (g) $(1 + 2)^3$ (h) $(2 + 8)^3$

(i) $10 − \sqrt{16}$ (j) $\sqrt{(2 + 14)}$ (k) $\sqrt{4} + 3^2$ (l) $2 x 5 − \sqrt{4}$

Question 3:   Work out

(a) 5 x 3 + 2 x 6   (b) 9 ÷ 3 + 15 x 2   (c) 10 ÷ 2 − 2 x 1   (d) 5 x (2 + 1) + 4

(e) 8 + (5 − 1) x 3   (f) 50 − (1 + 4) x 4   (g) $19 x 2 + 5^2$ (h) $8^2 + 2 x 3^2$

(i) $7 x (8 ÷ 4)^2$ (j) $11 + 11 − 6^2 ÷ 2$

Question 4:   Copy out the following and insert brackets in each to make the correct answer.

(a) 10 x 2 + 6 = 80   (b) 5 + 5 ÷ 5 = 2   (c) 18 − 6 ÷ 2 = 6

(d) 5 + 2 x 3 + 1 = 13   (e) 2 x 7 + 1 x 3 = 48   (f) $9 + 3^2 x 10 ÷ 2 = 90$

Corbett mαths

Apply

Question 1:   Matthew says 9 + 3 x 2 = 15. Is he correct?

Question 2:   Samuel says 6 + 4 x 9 = 90. Is he correct?

Question 3:   Using the numbers 2, 3 and 4 and the operations +, –, and x make as many different possible answers.

Question 4:   Matilda thinks of a number, n.
                      She adds 2 and then multiplies by 3.

                      Which expression below is correct?

A	B	C
n + 2 x 3	3n + 2	(n + 2) x 3

Question 5:   Can you spot any mistakes?

Work out 9 + 4 x 3 + 2

= 13 x 3 + 2

= 39 + 2

= 41

Extension Task

Using four number 2's try to make as many different answers as you can.
You may use +, –, x, ÷ and brackets.

You may use one or more of the 2's as powers.

Answers

Click here

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Examples

Workout

Click here

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Question 1: Solve the following equations

(a) $w + 5 = 7$

(b) $c + 2 = 10$

(c) $a - 1 = 6$

(d) $x - 4 = 5$

(e) $x + 4 = 13$

(f) $3w = 12$

(g) $2x = 18$

(h) $\dfrac{w}{2} = 6$

(i) $\dfrac{x}{4} = 7$

(j) $5y = 30$

(k) $x + 10 = 40$

(l) $2x = 34$

(m) $x - 9 = 7$

(n) $\dfrac{m}{6} = 8$

(o) $w - 15 = 35$

(p) $\dfrac{x}{10} = 5$

(q) $11y = 55$

(r) $2x = 11$

(s) $b + 6 = 4$

(t) $\dfrac{x}{3} = 1.5$

(u) $4y = 10$

(v) $10g = 37$

(w) $a - 7 = -3$

(x) $v + 2 = -6$

(y) $\dfrac{w}{4} = 2.7$

(z) $5y = 24$

Question 2: Solve the following equations

(a) $2x + 3 = 9$

(b) $3w - 1 = 14$

(c) $7y + 2 = 30$

(d) $5x + 20 = 35$

(e) $6c - 12 = 48$

(f) $8m - 4 = 20$

(g) $7w + 13 = 90$

(h) $12p - 18 = 30$

(i) $9w - 5 = 67$

(j) $10a + 40 = 100$

(k) $9x - 24 = 84$

(l) $7w + 1 = 1$

(m) $6x - 19 = 5$

(n) $3w + 4 = 43$

(o) $\dfrac{x}{3} + 1 = 5$

(p) $\dfrac{c}{2} - 4 = 6$

(q) $\dfrac{x}{10} + 3 = 9$

(r) $\dfrac{n}{9} - 8 = 1$

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28

(s) $\dfrac{x}{4} - 7 = 14$

(t) $\dfrac{c}{3} + 8 = 40$

(u) $\dfrac{x}{5} - 26 = 19$

Question 3: Solve the following equations

(a) $2m + 8 = 15$

(b) $10w - 3 = 45$

(c) $4x + 5 = 7$

(d) $5w + 11 = 19$

(e) $8x + 2 = 30$

(f) $4x + 11 = 3$

(g) $6w + 20 = 2$

(h) $2w - 9 = -6$

(i) $3c + 8 = -13$

(j) $\dfrac{x}{3} + 6 = 1$

(k) $\dfrac{w}{2} + 8 = 3$

(l) $\dfrac{m}{8} + 7 = -1$

(m) $\frac{1}{2}x + 3 = 15$

(n) $\frac{1}{4}m - 7 = 2$

(o) $\frac{1}{3}x - 2 = -6$

Question 4: Solve the following equations

(a) $\dfrac{x + 1}{2} = 9$

(b) $\dfrac{x - 3}{4} = 8$

(c) $\dfrac{m - 8}{5} = 3$

(d) $\dfrac{2x}{3} = 6$

(e) $\dfrac{3x}{5} = 30$

(f) $\dfrac{5x}{4} = 20$

(g) $\dfrac{2x}{7} + 2 = 12$

(h) $\dfrac{8x}{3} - 9 = 7$

(i) $\dfrac{3x}{10} - 4 = 8$

(j) $\dfrac{10m + 20}{15} = 6$

(k) $\dfrac{2x + 5}{3} = 7$

(l) $\dfrac{7x - 5}{10} = 10$

Question 5: Solve the following equations

(a) $16 - y = 5$

(b) $5 + x = 13$

(c) $10 - 3x = 1$

(d) $38 - 4m = 14$

(e) $9 + 7x = 51$

(f) $11 - 5x = 21$

(g) $18 - 3a = 6$

(h) $21 = 7 + 4f$

(i) $44 = 58 - 8g$

Corbett maths

Apply

Question 1: The equation 9x = 27 has an answer of x = 3.
Write down five different equations with an answer of x = 3.

Question 2: Ronald is x years old.
His friend Colin is 3 years older than than Ronald.
Colin is 19 years old.
(a) Write down an equation for this information.
(b) Solve your equation to find how old Ronald is.

Question 3: Hannah is n years old.
Her aunt Emily is three times older than Hannah.
Emily is 48 years old.
(a) Write down an equation for this information.
(b) Solve your equation to find how old Ronald is.

Question 4: Sam thinks of a number, n.
He multiplies his number by 7 and then adds 3 to the result.
His final answer is 45.
(a) Write down an equation for this information.
(b) Solve your equation to find the number, n.

Question 5: A rectangular field has a perimeter of 150m.
The field is 15 metres longer than it is wide.
The width of the field is x metres.
(a) Write down an equation for this information.
(b) Solve your equation to find the width of the field
(c) Find the length of the field

Question 6: Shown is a triangle.
The three angles add up to give 180°
(a) Write down an equation for this information
(b) Solve your equation to find x.
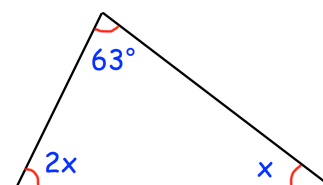
Question 7: The sum of each row is given.
Find a, b, c and d.

a	a	a	a	24
a	a	b	b	28
b	c	c	c	29
a	b	c	d	31

Answers

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Examples

Workout

Click here   Scan here

Question 1:   Arrange in order from smallest to largest

(a) 8, 5, 9, 10, 2   (b) 11, 20, 9, 15, 14, 3

(c) 40, 60, 20, 30, 90, 10   (d) 83, 18, 45, 37, 90, 21

(e) 140, 180, 210, 70, 300   (f) 605, 56, 566, 655, 506, 65, 555

(g) 2000, 375, 7100, 2900, 999, 400

Question 2:   Arrange in order from smallest to largest

(a) 3, −5, 1, 0, −2, 4   (b) −1, 8, −5, 2, −9, −4, 3

(c) −1, −7, −2, 5, −6, 1   (d) 10, −7, −3, 5, −9, −2, −12

(e) 21, −3, 16, −19, −15, 23, −30   (f) −25, 35, 15, −5, 25, −45, 20

(g) 129, 101, −11, −111, 92, −91, 133, −29

Question 3:   Place the correct sign, < or >, between the following pairs of numbers

(a) 3 ☐ 1   (b) 2 ☐ 7   (c) 10 ☐ 11

(d) 8 ☐ 5   (e) 33 ☐ 25   (f) 28 ☐ 21

(g) 102 ☐ 99   (h) 110 ☐ 113

Question 4:   Place the correct sign, < or >, between the following pairs of numbers

(a) -3 ☐ 2   (b) 4 ☐ -1   (c) -5 ☐ 3

(d) -3 ☐ -1

(e) -19 ☐ 15

(f) -20 ☐ -30

(g) -8 ☐ -11

(h) -12 ☐ -9

Apply

Question 1:   Redville is 102 miles from Leek.
Castleville is 75 miles from Leek.
Which town is the greater distance from Leek?

Question 2:   James took 617 seconds to complete a puzzle.
Georgia took 598 seconds to complete the same puzzle.
Who completed the puzzle in the shortest time?

Question 3:   Arrange these temperatures in order, from lowest to highest

(a) 8°C, 12°C, 9°C, 15°C, 11°C, 7°C, 2°C

(b) 2°C, −5°C, 4°C, 8°C, −3°C, 1°C, −7°C

(c) 5°C, −3°C, 11°C, 9°C, −14°C, 21°C, −1°C
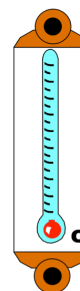
Question 4:   Jemima earns £41,838, Patrick earns £40,989 and Benny earns £42,001

(a) Who earns the least amount of money?
(b) Who earns the most amount of money?

Question 5:

(a) Arrange the towns in order of temperature, starting with the lowest.

(b) How much warmer is it in Leek than Newtown?

(c) Which town has a temperature closest to 0°C
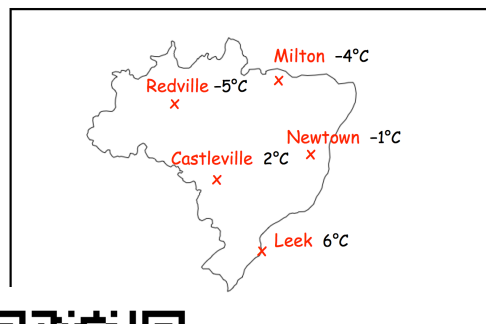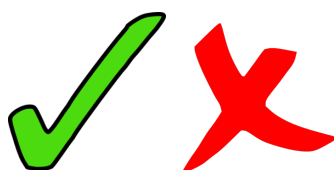
Milton −4°C
Redville −5°C
Newtown −1°C
Castleville 2°C
Leek 6°C

Answers

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Examples

Workout

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Question 1: Write down the coordinates of the points A, B, C, D, E, F, G and H.
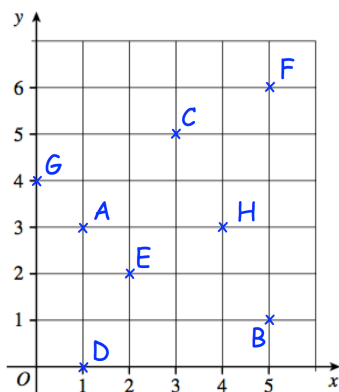
Question 2: Make a copy of the grid shown and then plot the points:

(a) A (3, 1)
(b) B (2, 5)
(c) C (5, 4)
(d) D (1, 1)
(e) E (4, 0)
(f) F (0, 1)
(g) G (3, 3)
(h) H (0, 0)
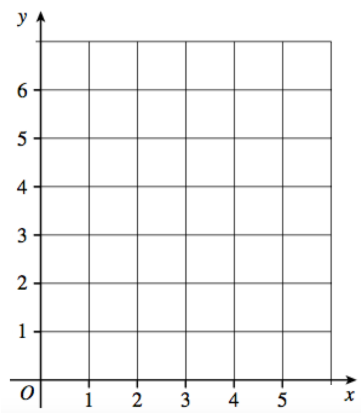
Question 3: Write down the coordinates of the points A, B, C, D, E, F, G and H.
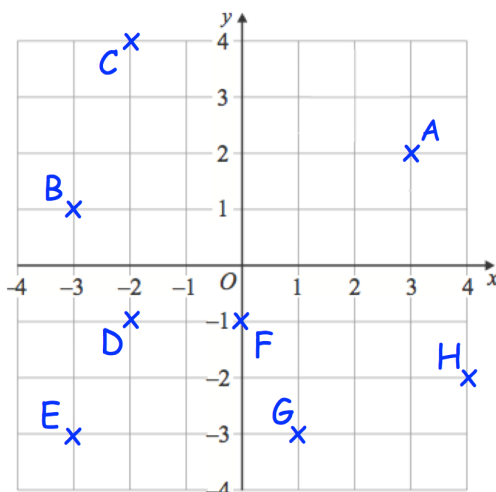
Question 4: Make a copy of the grid shown and then plot the points:

(a) A (1, 4)
(b) B (−1, 1)
(c) C (−3, −4)
(d) D (2, −1)
(e) E (−2, 0)
(f) F (−1, −2)
(g) G (3, −2)
(h) H (0, −4)
(i) I (−2, 2)
(j) J (−4, −1)
(k) K (0, 1)
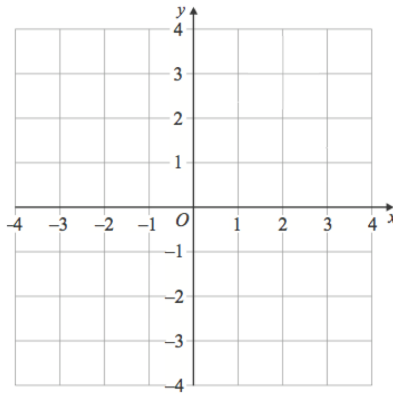
Apply

Question 1: Three points are shown on a grid.
ABCD is a rectangle.

(a) Plot D
(b) Write down the coordinates of the point D
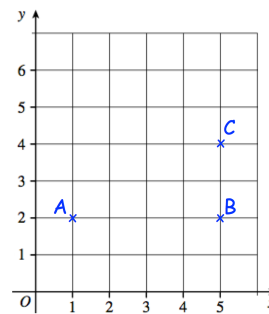
Question 2: Two points are shown on a grid
ABC is an isosceles triangle.

(a) Plot C
(b) Write down the coordinates of the point C
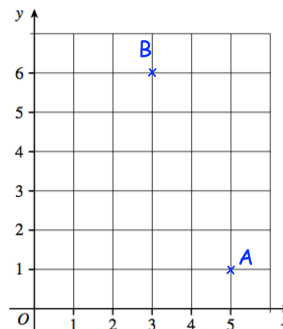
Question 3: Make a copy of the grid shown.

(a) Plot the point A (−3, −2)
(b) Plot the point B (1, −2)
(c) Plot the point C (3, 1)
(d) Plot the point D (−1 , 1)
(e) What type of quadrilateral is ABCD?

Corbett
mαths
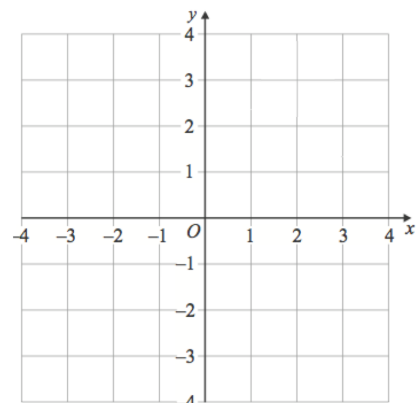
For each question 4-5 below, you will need copies of this grid.
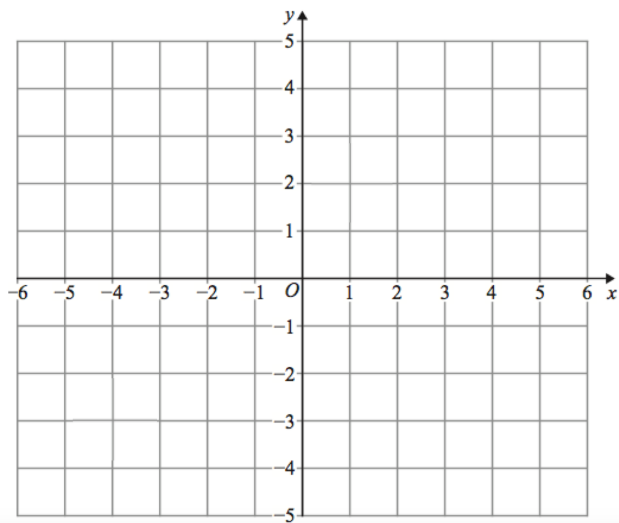
Question 4: (a) Plot the following coordinates

$(3, 0)$ $(-3, -2)$ $(1, -4)$ $(1, 2)$ $(-3, 0)$ $(-1, -4)$ $(3, -2)$ $(-1, 2)$

(b) Join the shapes to make a polygon.
(c) Name the polygon that you have drawn.

Question 5: (a) Plot the coordinates A $(-4, 1)$, B $(1, -2)$ and C $(2, 1)$
(b) ABCD is a kite.
(c) Plot D
(d) Write down the coordinates of the point D.

Question 6: James has been asked to plot the coordinates A $(-3, 2)$, B $(0, 2)$, C $(-1, -4)$ and
D $(4, -4)$

Can you spot any mistakes?
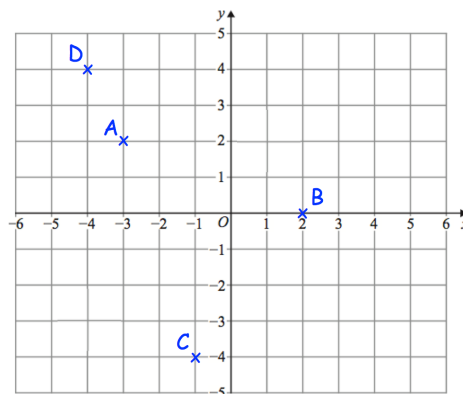
Answers

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Examples

Click here   **Scan here**

Workout

Question 1:   Work out the answers to each of the following

(a) 2 – 3   (b) 3 – 5   (c) 4 – 9   (d) 1 – 5

(e) 5 – 7   (f) 6 – 7   (g) 8 – 11   (h) 2 – 10

(i) −2 + 4   (j) −3 + 9   (k) −7 + 10   (l) −6 + 1

(m) −5 + 8   (n) −9 + 7   (o) −20 + 11   (p) −12 + 18

(q) −3 – 2   (r) −4 – 1   (s) −6 – 3   (t) −1 – 5

(u) −7 – 3   (v) −8 – 5   (w) −9 – 12   (x) −15 – 13

Question 2:   Work out the answers to each of the following

(a) 3 + 5 – 4   (b) 2 + 1 – 6   (c) 5 – 8 – 1   (d) 7 – 10 + 1

(e) 8 + 3 – 15   (f) 5 – 6 – 4   (g) 1 – 7 – 4   (h) −3 + 6 + 1

(i) −8 + 2 + 3   (j) −10 + 4 – 6   (k) −9 – 3 – 1   (l) −2 – 7 + 4

(m) −20 + 11 – 6   (n) −5 + 14 – 8   (o) −13 – 4 + 6   (p) −30 – 80 + 40

Question 3:   Work out the answers to each of the following

(a) 4 + −1   (b) 6 + −2   (c) 8 + −7   (d) 3 + −5

(e) 1 + −7   (f) 3 + −10   (g) −2 + −1   (h) −1 + −6

(i) −5 + −5   (j) −4 + −5   (k) −10 + −11   (l) −8 + −4

Question 4: Work out the answers to each of the following

(a) 6 – +1   (b) 3 – +2   (c) 8 – +4   (d) 2 – +5

(e) 1 – +9   (f) –2 – +5   (g) –10 – +3   (h) –1 – +1

(i) 5 – +11   (j) –2 – +6   (k) –20 – +13   (l) 15 – +25

Question 5: Work out each of the following

(a) 1 – –2   (b) 3 – –1   (c) 3 – –5   (d) 6 – –4

(e) 9 – –2   (f) –1 – –4   (g) –2 – –1   (h) –8 – –3

(i) –5 – –9   (j) – 6 – –7   (k) –15 – –8   (l) –12 – –30

Question 6: Work out each of the following

(a) 11 – 15   (b) –9 + 5   (c) –4 – 8   (d) –4 + –3

(e) –9 – +4   (f) 10 – –3   (g) 7 – 20   (h) –2 – –5

(i) 12 + –7   (j) –4 – –1   (k) –9 + –8   (l) 8 – 13

(m) 6 – –11   (n) –7 – +7   (o) –6 – 5   (p) –20 + –3

(q) –9 – –15   (r) –8 + 25   (s) 31 – 50   (t) –30 – –16

(u) –41 – 14   (v) – 5 – +23   (w) –16 + –15   (x) 40 – –40

(y) –18 – –27   (z) –52 + 90

Apply

Question 1: At midnight, the temperature in Belfast was –2°C
At 9am, the temperature was 5°C

By how many degrees did the temperature rise?
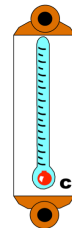
Question 2: Mr Jones has –£50 in his bank account.
If he pay £70 into the bank, how much will he now have in his account?

Corbett maths

Question 3: In the magic squares below, the numbers in any column, row or diagonal add up to give the same answer.
Complete each magic square.

(a)

-4	-9	-2
-8		-6

(b)

-3		-1
2		
1		

Question 4: Work out the missing numbers

(a) $\boxed{} + 3 = 1$

(b) $0 - \boxed{} = 8$

(c) $-6 + \boxed{} = -1$

(d) $\boxed{} - 5 = -13$

(e) $9 - \boxed{} = 15$

(f) $-2 - \boxed{} = 5$

Question 5: Write down five different additions that have an answer of 2.
You may only use whole numbers.

Question 6: Write down five subtractions that have an answer of 2.
You must use at least one negative number per calculation.

Question 7: Below are seven cards, each with a number written on it.

$\boxed{-3}$ $\boxed{-4}$ $\boxed{6}$ $\boxed{2}$ $\boxed{4}$ $\boxed{-7}$ $\boxed{1}$

(a) Choose two suitable cards to make the calculation correct.

$\boxed{} + \boxed{} = 2$

(b) Choose two cards that will give the smallest possible answer

$\boxed{} + \boxed{}$

(c) Choose two cards that will give an answer of zero

$\boxed{} + \boxed{} = 0$

(d) Choose two cards that will give the greatest possible answer

$\boxed{} - \boxed{}$

Answers

✓ ✗

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Examples

Workout

Click here

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Question 1:   Answer each of the following multiplications

(a) 2 × −3   (b) −4 × 3   (c) −5 × 5   (d) −7 × −2

(e) −6 × −3   (f) 8 × −4   (g) −9 × 3   (h) −5 × −8

(i) −9 × 7   (j) 10 × −8   (k) 7 × −4   (l) 6 × 8

(m) −11 × 3   (n) 4 × −15   (o) −12 × −12   (p) −5 × 7

(q) 9 × −8   (r) −7 × −8   (s) 12 × −6   (t) 4 × −13

(u) −11 × 10   (v) −20 × −6   (w) 14 × 7   (x) −18 × −13
(y) 25 × −7   (z) −16 × 21

Question 2:   Answer each of the following multiplications

(a) 2 × 3 × −2   (b) −3 × 2 × 5   (c) −5 × −6 × 2   (d) 10 × −3 × −4

(e) −9 × 2 × −2   (f) −4 × −3 × −5   (g) −8 × −8 × −2   (h) 5 × −4 × −7

Question 3:   Work out each of the following

(a) $(-3)^2$ (b) $(-6)^2$ (c) $(-2)^2$ (d) $(-1)^2$

(e) $(-10)^2$ (f) $(-8)^2$ (g) $(-12)^2$ (h) $(-20)^2$

Question 4:   Work out each of the following

(a) $(-2)^3$ (b) $(-3)^3$ (c) $(-1)^3$ (d) $(-5)^3$

(e) $(-1)^4$ (f) $(-10)^4$ (g) $(-2)^4$ (h) $(-3)^4$

Question 5:   Answer each of the following divisions

(a) −10 ÷ 2   (b) −12 ÷ 3   (c) −24 ÷ 4   (d) −42 ÷ 6

(e) 9 ÷ −3   (f) 21 ÷ −7   (g) −44 ÷ 11   (h) −72 ÷ 9

(i)   −10 ÷ −5   (j) −28 ÷ −4   (k) −30 ÷ −3   (l)   −48 ÷ −8

(m) −6 ÷ 6   (n) 24 ÷ −3   (o) −12 ÷ −12   (p) −132 ÷ 11

(q) 72 ÷ −8   (r) −108 ÷ −9   (s) 36 ÷ −9   (t) 100 ÷ −4

(u) −95 ÷ 5   (v) −49 ÷ −7   (w) 144 ÷ 12   (x) −215 ÷ −5
(y) 90 ÷ −15   (z) −342 ÷ 9

Question 6:   Answer each of the following divisions

(a) −9 × −5   (b) −32 ÷ 8   (c) 66 ÷ −6   (d) 2 × −12

(e) −24 ÷ −3   (f) −12 × 7   (g) −54 ÷ 6   (h) −16 × −2

(i)   8 × −6   (j) −7 × −6   (k) 40 ÷ −8   (l)   56 ÷ −7

(m) −81 ÷ −9   (n) −14 × −5   (o) 10 × −11   (p) −65 ÷ 5

(q) −90 × −3   (r) −170 ÷ −10   (s) 1 ÷ −1   (t) −1.5 × −3

(u) −17 ÷ 2   (v) 2.2 × −10   (w) −93 ÷ −10   (x) −6.2 × −3

(y) −9 × 10.5   (z) 52 ÷ −5

Apply

Question 1:   Work out the missing numbers

(a) −6 x ☐ = −30   (b) −6 x ☐ = 0

(c) −6 x ☐ = 18   (d) ☐ x −6 = −54

Question 2:   Work out the missing numbers

(a) −24 ÷ ☐ = 6   (b) ☐ ÷ −8 = −2

(c) 32 ÷ ☐ = −4   (d) ☐ ÷ −3 = 4

Question 3: Write down eight multiplications with an answer of −20

Question 4: Write down eight divisions with an answer of −3

Question 5: Write down the next two numbers in each of these number sequences

(a) 2, −6, 18, ... , ...

(b) −5, 10, −20, ... , ...

(c) 240, −120, 60, ... , ...

(d) −12, 6, −3, ... , ...

Question 6: Shown below is a "magic square" where the product of each row, column and diagonal are equal.

Find the missing numbers

	36	
9	6	4
-12		

Question 7: Shown below is a "magic square" where the product of each row, column and diagonal are equal.

Find the missing numbers

-5	100	
4		25
		-20

Answers

✓ ✗

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Examples

Apply

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Question 1: The thermometer below shows the temperature at 6am in a town.

(a) What temperature is shown?

-7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9

The temperature increases by 5°C by 10am.

°C

(b) What is the temperature at 10am.
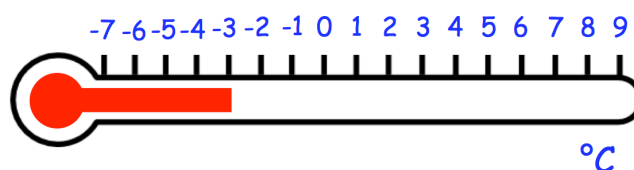
Question 2: The map shows the temperatures in six cities.

(a) Which city is the warmest?

(b) Which city is the coldest?

(c) What is the difference in temperature between London and Cork?

The temperature in Berlin is 4°C colder than Belfast

(d) What is the temperature in Berlin?

Aberdeen -6°C

Belfast -9°C

Newcastle -8°C

Cardiff 0°C

London 2°C

Cork -7°C
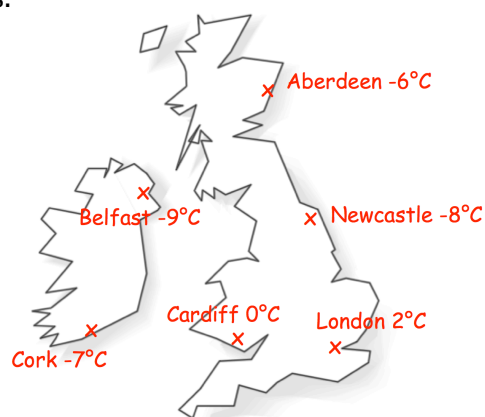
Question 3: Shown is a list of locations and their elevations

(a) List the locations that are below sea level, 0 metres.

(b) Which location has the lowest elevation?

(c) Which location has the highest elevation?

(d) Work out the difference in Baku's and Tokyo's elevations

Location	Elevation
Coachella	-22 metres
Bern	542 metres
Jericho	-258 metres
Baku	-28 metres
Lake Eyre	-16 metres
Tokyo	17 metres

Question 4: At 3am the temperature is −8°C.
By 1pm the temperature went up by 13°C.
From 1pm to 10pm the temperature went down by 6°C

Work out the temperature at 10pm.

Question 5:   The table below shows some information about the minimum and maximum
temperature for a day in January.

The minimum temperature in Lisburn is 1°C colder
than its maximum temperature.

City	Minimum °C	Maximum °C
Glasgow	-6°C	9°C
Bristol	4°C	14°C
Norwich	-7°C	7°C
Hull	-1°C	10°C
Derby	5°C	11°C
Lisburn		-2°C

(a)   What was Lisburn's minimum temperature?

(b)   Which city had the lowest minimum temperature?

(c)   Which city had the greatest maximum temperature?

(d)   Which city had the greatest difference between their minimum and maximum
temperatures?

Question 6:   Dominic's bank account balance is £23.
He withdraws £50 from his bank account.
What is his new bank account balance?

Question 7:   Daisy's bank account balance is –£100.
Daisy deposits £35 into the bank account.
What is her new bank account balance?

Question 8:   The table shows the melting points of some elements

(a)   Which element has the lowest melting point?

(b)   Work out the difference in melting points of
bromine and mercury

(c)   Work out the difference in melting points of
nitrogen and silicon

Element	Melting Point
Bromine	-7°C
Caesium	29°C
Mercury	-39°C
Nitrogen	-210°C
Phosphorus	44°C
Silicon	1414°C

The temperature is –10°C

(d)   Which of the elements are solid?

Question 9:   Ballymena Rovers started a football season on –14 points
Each win is worth 3 points.
Each draw is worth 1 point
Each loss is worth 0 points.
Over the season, Ballymena Rovers won 15 matches, drew 3 matches and lost 2.

How many points did they finish with at the end of the season?

Question 10: Tristan is taking part in a maths competition.
Each correct answer is worth 5 points and each incorrect answer is worth –3
If Tristan chooses not to answer a question, it is worth 0 points.
There are 10 questions in total.

(a) What would Tristan's final score be if he answered 5 correctly, 4 incorrectly and left 1 blank?

(b) Can Tristan finish with –10 points? Explain your answer.

Question 11: The temperature, in °C, at midnight at a weather station on 5 days was recorded.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Temperature	-6	3	-4	1	-4

(a) What percentage of the days had temperatures below 0°C ?

(b) What is the range of the temperatures?

(c) What is the median of the temperatures?

(d) What is the mean of the temperatures recorded?

Answers
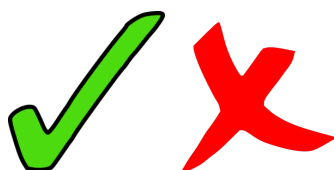
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St Andrew's Academy

Mathematics Department
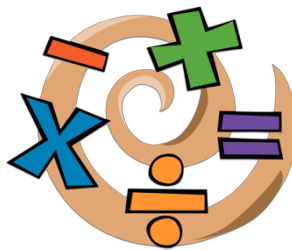
BLOCK TWO

Number	Algebra	Mensuration
• Rounding (*nearest whole number, 10, 100, 1000, 1dp & 2dp*). • Understanding decimals (*place value revision*). • Ordering decimals. • Reading decimal scales. • Add/Subtract Decimals. • Multiply/Divide Decimals by whole numbers.	• Substitution. • Collecting like terms.	• Measuring and drawing lengths. • Converting units of length. • Calculating perimeter • Area of squares and rectangles. • Area of triangles.

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Examples

Workout

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Question 1:   Round each of the numbers below to the nearest whole number.

(a) 5.8
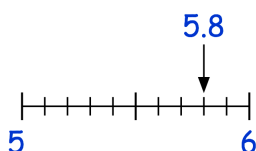
5.8
$\downarrow$
5   6

(b)   12.1

12.1
$\downarrow$
12   13

(c)   8.6

8.6
$\downarrow$
8   9

(d)   4.4

4.4
$\downarrow$
4   5

(e) 15.3

15.3
$\downarrow$
15   16

(f)   325.9

325.9
$\downarrow$
325   326

(g)   0.7

0.7
$\downarrow$
0   1

(h)   18.5

18.5
$\downarrow$
18   19
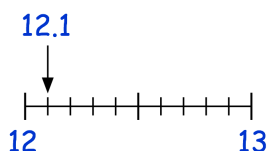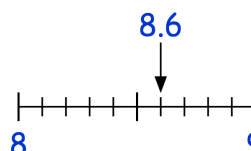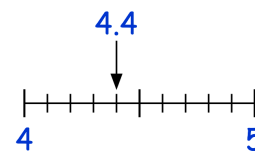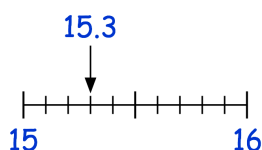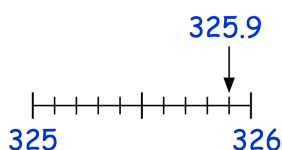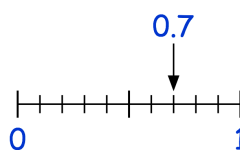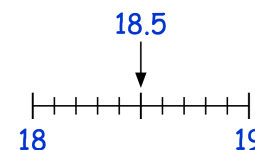
Question 2:   Round each of the following numbers to the nearest whole number.

(a) 7.2   (b) 1.9   (c) 14.3   (d) 9.4   (e) 27.8   (f) 19.1   (g) 50.6

(h) 154.7   (i) 200.5   (j) 334.6   (k) 99.9   (l) 840.4   (m) 1981.6   (n) 245.3

Question 3:   Round each of the numbers below to the nearest whole number.

(a) 8.15
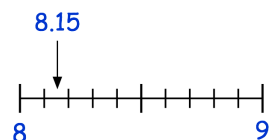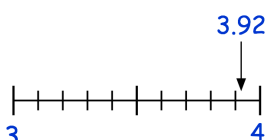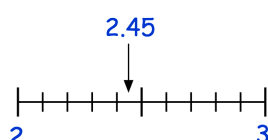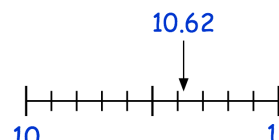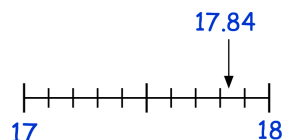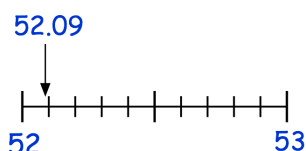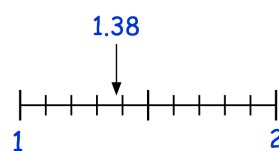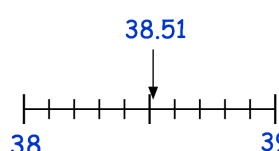
8.15
$\downarrow$
8   9

(b)   3.92

3.92
$\downarrow$
3   4

(c)   2.45

2.45
$\downarrow$
2   3

(d)   10.62

10.62
$\downarrow$
10   11

(e) 17.84

17.84
$\downarrow$
17   18

(f)   52.09

52.09
$\downarrow$
52   53

(g)   1.38

1.38
$\downarrow$
1   2

(h)   38.51

38.51
$\downarrow$
38   39

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Question 4: Round each of the following numbers to the nearest integer (whole number).

(a) 4.11   (b) 6.74   (c) 2.91   (d) 9.46   (e) 8.27   (f) 6.34

(g) 13.89   (h) 16.08   (i) 42.63   (j) 29.54   (k) 38.15   (l) 103.46

Question 5: Round each of the following numbers to the nearest integer (whole number).

(a) 48.394   (b) 7.651   (c) 8.909   (d) 32.488   (e) 838.099   (f) 573.5619

(g) 15.6001   (h) 144.4998

Apply

Question 1: A cupcake contains 4.6g of protein.
Round 4.6g to the nearest whole number.

Question 2: The thermometer shows the temperature in a town.
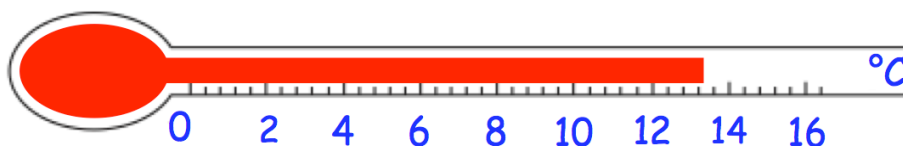
(a) Write down the temperature
(b) Round the temperature to the nearest degree celsius.

Question 3: Georgia has divided 2355 by a number on her calculator
The calculator shows the answer.
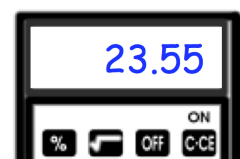
23.55

(a) What number did Georgia divide 2355 by?
(b) Round her answer to the nearest integer

Question 4: Derek wants to round 8 hours and 45 minutes to the nearest hour.
He says the answer is 8 because 8.45 rounds to 8.
Explain why Derek is wrong.

Question 5: Jurgen has rounded a number to the nearest whole number.
His answer was 600.
Write down 5 different possible numbers that he could have rounded.

Answers

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Corbett maths

Examples

Workout

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Question 1: Round the following numbers to the nearest 10

(a) 32   (b) 67   (c) 71   (d) 24

(e) 59   (f) 92   (g) 16   (h) 83

(i) 17   (j) 14   (k) 78   (l) 43

(m) 84   (n) 27   (o) 25   (p) 41

(q) 75   (r) 33   (s) 95   (t) 98

(u) 19   (v) 99   (w) 62   (x) 54

(y) 15   (z) 74

Question 2: Round the following numbers to the nearest 10

(a) 121   (b) 146   (c) 164   (d) 185

(e) 292   (f) 238   (g) 312   (h) 333

(i) 845   (j) 582   (k) 233   (l) 167

(m) 596   (n) 705   (o) 502   (p) 993

(q) 998   (r) 1241   (s) 1628   (t) 1164

(u) 2673   (v) 6036   (w) 7555   (x) 8128

(y) 13821   (z) 29234

Question 3: Round the following numbers to the nearest 10

(a) 24.2   (b) 61.9   (c) 76.8   (d) 26.4

(e) 14.7   (f) 231.8   (g) 185.3   (h) 201.5

(i) 78.38   (j) 135.14   (k) 141.97   (l) 164.89

(m) 4938.3   (n) 5141.49   (o) 15.455   (p) 1009.02

Question 4: Round the following numbers to the nearest 100

(a) 390   (b) 220   (c) 160   (d) 240

(e) 518   (f) 842   (g) 756   (h) 547

(i) 371   (j) 578   (k) 613   (l) 888

(m) 374   (n) 611   (o) 673   (p) 480

(q) 150   (r) 349   (s) 951   (t) 950

(u) 850   (v) 949   (w) 748   (x) 540

(y) 450   (z) 495

Question 5: Round the following numbers to the nearest 100

(a) 1430   (b) 1280   (c) 1610   (d) 1550

(e) 4030   (f) 6080   (g) 7420   (h) 8160

(i) 3562   (j) 2415   (k) 8283   (l) 5858

(m) 9248   (n) 3358   (o) 4214   (p) 9987

(q) 13494   (r) 16148   (s) 13114   (t) 15832

(u) 26783   (v) 56862   (w) 45555   (x) 13668

(y) 489481   (z) 124346

Question 6: Round the following numbers to the nearest 100

(a) 248.2   (b) 561.9   (c) 716.8   (d) 246.4

(e) 149.7   (f) 2315.8   (g) 1835.3   (h) 2061.5

(i) 2378.38   (j) 5135.14   (k) 9141.97   (l) 4164.89

(m) 44938.3   (n) 25141.49   (o) 1995.455   (p) 51009.02

Question 7:   Round the following numbers to the nearest 1000

(a) 2300   (b) 5600   (c) 2900   (d) 8200

(e) 7200   (f) 8420   (g) 2780   (h) 4500

(i) 1930   (j) 6480   (k) 7710   (l) 5500

(m) 4951   (n) 7571   (o) 7456   (p) 5499

(q) 7395   (r) 3112   (s) 3661   (t) 5532

(u) 4945   (v) 9442   (w) 9550   (x) 9499

(y) 9934   (z) 7409

Question 8:   Round the following numbers to the nearest 1000

(a) 21800   (b) 18300   (c) 17600   (d) 19200

(e) 11590   (f) 16350   (g) 24500   (h) 34800

(i) 38434   (j) 84925   (k) 48358   (l) 56187

(m) 123940   (n) 293482   (o) 231184   (p) 563921

Question 10: Round the following numbers to the nearest 10000

(a) 39304   (b) 23424   (c) 44500   (d) 26492

(e) 26500   (f) 54588   (g) 62049   (h) 75000

(i) 418553   (j) 144503   (k) 185000   (l) 384458

Question 11: Round the following numbers to the nearest 100000

(a) 384000   (b) 129400   (c) 569000   (d) 812300

(e) 384984   (f) 750000   (g) 1284000   (h) 2840000

Question 12: Round the following numbers to the nearest 1000000

(a) 1492000   (b) 5600000   (c) 7308000   (d) 6670000

(e) 12800000   (f) 17450000   (g) 35700000   (h) 384728521

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Apply

Question 1: 645 people attended a concert. Round this to the nearest 10.

Question 2: 861 students attend a school. Round this to the nearest 100.

Question 3: The cost of a laptop is £1348. Round this to the nearest £100.

Question 4: 24,812 people attended a football match. Round this to the nearest thousand.

Question 5: The population of a city is 85,398. Round this to the nearest thousand.

Question 6: The number of beads in a jar is 50 to the nearest ten.
        (a) What is the minimum possible number of beads in the jar?
        (b) What is the maximum possible number of beads in the jar?

Question 7: The number of students at a school is 1200 to the nearest 100.
        What is the maximum possible number of students at the school?

Question 8: The population of a village is 900 to the nearest 100.
        State if the following could be true or false:

        (a) 890 people live in the village.
        (b) 960 people live in the village.
        (c) 912 people live in the village.
        (d) 845 people live in the village.
        (e) 850 people live in the village.
        (f) 950 people live in the village.

Question 9: The value of a car is £7000 to the nearest thousand pounds.
        (a) What is the least possible value of the car?
        (b) What is the greatest possible value of the car?

Question 10: The number of people at a concert is 200 to the nearest 10.
        (a) What is the least possible number of people at the concert?
        (b) What is the greatest possible number of people at the concert?

Answers

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Examples

Workout

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Question 1:   Round each of the numbers below to 1 decimal place.

(a) 3.47

3.47

```
├┼┼┼┼┼┼┼┼┤
3.4            3.5
```

(b)   0.11

0.11

```
├┼┼┼┼┼┼┼┼┤
0.1            0.2
```

(c) 9.84

9.84

```
├┼┼┼┼┼┼┼┼┤
9.8            9.9
```

(d) 12.75

12.75

```
├┼┼┼┼┼┼┼┼┤
12.7            12.8
```
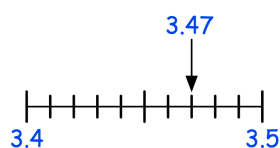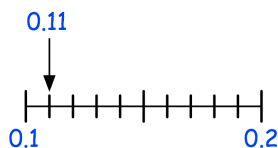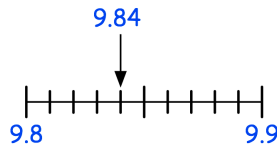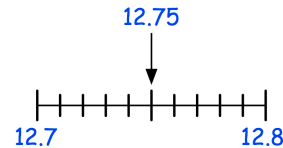
Question 2:   Round each of the following numbers to 1 decimal place.

(a)   4.82   (b)   6.19   (c)   9.77   (d) 10.63   (e)   21.41   (f) 3.14   (g) 48.18

(h) 29.26   (i) 80.85   (j) 0.43   (k) 248.38   (l) 637.51   (k) 62.89   (l) 9.99

Question 3:   Round each of the numbers below to one decimal place.

(a) 4.282

4.282

```
├┼┼┼┼┼┼┼┼┤
4.2            4.3
```

(b)   7.725

7.725

```
├┼┼┼┼┼┼┼┼┤
7.7            7.8
```

(c)   2.548

2.548

```
├┼┼┼┼┼┼┼┼┤
2.5            2.6
```

(d) 1.6631

1.6631

```
├┼┼┼┼┼┼┼┼┤
1.6            1.7
```
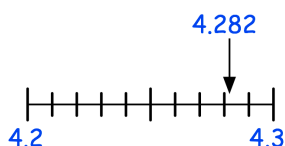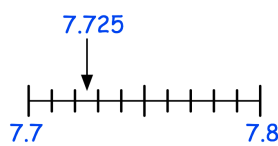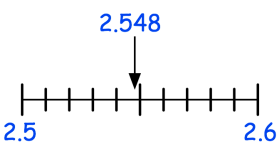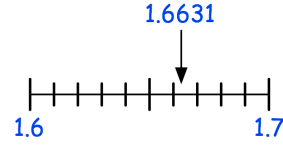
Question 4:   Round each of the numbers below to the nearest tenth (1 decimal place)

(a)   5.191   (b)   8.246   (c) 10.087   (d) 39.555   (e) 0.831

(f)   93.2941   (g) 38.3152   (h) 7.26229   (i)   0.54868696

Question 5:   Round each of the numbers below to 2 decimal places.

(a) 5.123
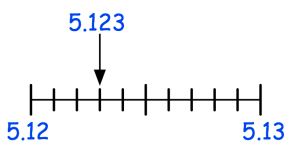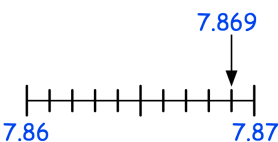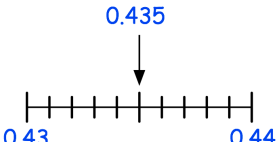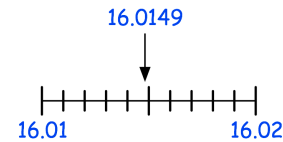
5.123

```
├┼┼┼┼┼┼┼┼┤
5.12            5.13
```

(b)   7.869

7.869

```
├┼┼┼┼┼┼┼┼┤
7.86            7.87
```

(c)   0.435

0.435

```
├┼┼┼┼┼┼┼┼┤
0.43            0.44
```

(d) 16.0149

16.0149

```
├┼┼┼┼┼┼┼┼┤
16.01            16.02
```

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Question 6:   Round each of the numbers below to 2 decimal places

(a)   3.487   (b) 2.613   (c) 1.984   (d) 10.046   (e) 8.155

(f)   19.367   (g) 3.141   (h) 6.0698   (i) 4.26317   (j) 93.46197

Question 7:   Round each of the numbers below to 3 decimal places

(a)   0.0346   (b) 6.7568   (c) 4.2251   (d) 1.7583

(e)   40.48546   (f) 128.01891   (g) 0.5059802   (h) 384.456094

Apply

Question 1:   51.26% of the people living in a town are female.
                Round this figure to one decimal place.

Question 2:   Walter has worked out a calculation on a calculator
                Shown on the calculator is the answer.

                5.428

                (a) Round the answer to one decimal place
                (b) Round the answer to two decimal places
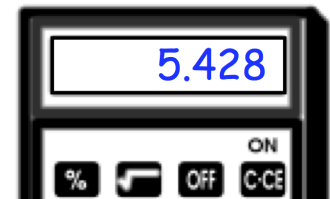
Question 3:   Daniel has been asked to round 1.725 to one decimal place.
                His answer is 172.5
                Explain Daniel's mistake.

Question 4:   Nicole has rounded a number to one decimal place.
                Her answer is 9.2
                Write down 10 different possible numbers that she could have rounded.

Question 5:   A chocolate bar contains 0.4715g of salt.
                Round this to two decimal places.

Question 6:   Dominic writes down two numbers, A and B.
                A and B have 2 decimal places.
                Dominic rounds A to 1 decimal place and calls his answer C.
                He rounds B to 1 decimal place and calls his answer D.
                Dominic says the difference between A and B cannot be the same as the
                difference between C and D.
                Show he is incorrect

Answers

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Question 1:   Rhys thinks of a number and rounds it to the nearest 10.
His answer is 80.

(a) What is the smallest possible number Rhys could have thought of?
(b) What is the greatest possible number Rhys could have thought of?

Question 2:   Charlotte thinks of a number and rounds it to the nearest 10.
Her answer is 140.

(a) What is the smallest possible number Charlotte could have thought of?
(b) What is the greatest possible number Charlotte could have thought of?

Question 3:   Melody thinks of a number and rounds it to the nearest 10.
Her answer is 800.

(a) What is the smallest possible number Melody could have thought of?
(b) What is the greatest possible number Melody could have thought of?

Question 4:   Steffan thinks of a number and rounds it to the nearest 100.
His answer is 500.

(a) What is the smallest possible number Steffan could have thought of?
(b) What is the greatest possible number Steffan could have thought of?

Question 5:   Fleur thinks of a number and rounds it to the nearest 100.
Her answer is 1900.

(a) What is the smallest possible number Fleur could have thought of?
(b) What is the greatest possible number Fleur could have thought of?

Question 6:   Rhian thinks of a number and rounds it to the nearest 1000.
Her answer is 24000.

(a) What is the smallest possible number Rhian could have thought of?
(b) What is the greatest possible number Rhian could have thought of?

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Question 7: The sign is correct to the nearest ten.

(a) What is the lowest possible number of people that live in Kingstone?

(b) What is the greatest possible number of people that live in Kingstone?

Kingstone
Population 1,380

Question 8: The sign is correct to the nearest hundred.

(a) What is the lowest possible number of people that live in Keswick?

(b) What is the greatest possible number of people that live in Keswick?

Keswick
Population 5,300

Question 9: The sign is correct to the nearest hundred.

(a) What is the lowest possible number of people that live in Keswick?

(b) What is the greatest possible number of people that live in Keswick?

Truro
Population   19,000

Question 10: A newspaper says the number of people at a rugby match is 37,000 to the nearest 1,000.

What is the greatest possible number of people at the match?

Question 11: The population of Wales is 3.1 millions, to the nearest hundred thousand.

(a) What is the lowest possible number of people that live in Wales?
(b) What is the greatest possible number of people that live in Wales?

Apply

Question 1: Owen has 200 marbles to the nearest hundred.

He says that means the greatest number of marbles he could have is 250.

Explain why Owen is incorrect.

Question 2: A packet of sweets contains 30 sweets to the nearest 10.
Miss Simpson gives each of the 20 students in her class a packet of sweets.

What is the lowest possible total number of sweets that Miss Simpson could have given out?

Question 3: Tomas organises a concert to raise money for charity.
Entry to the concert is £5.00
The number of people attending the concert is 700 to the nearest hundred.

What is the greatest possible amount of money he raised for charity?

Question 4: Evelyn has 8 bags of 20p coins.
Each bag contains 50 coins to the nearest 10.

Work out the difference between the greatest and smallest possible amount of money that Evelyn has.

Answers

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Rounding: Significant Figures
Video 279a on www.corbettmaths.com
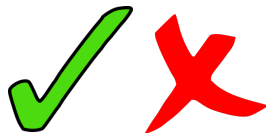
Examples

Workout

Click here   Scan here

Question 1:   Round each of the following numbers to 1 significant figure

(a)   36   (b)   22   (c)   83   (d)   68   (e)   97   (f)   120   (g)   519

(h)   260   (i)   741   (j)   888   (k)   408   (l)   650   (m)   148   (n)   972

(o)   3900   (p)   5400   (q)   4125   (r)   2732   (s)   6349   (t)   8099   (u)   6499

Question 2:   Round each of the following numbers to 1 significant figure

(a)   12000   (b)   46000   (c)   74500   (d)   83771   (e)   95120   (f)   330000

(g)   863000   (h)   248220   (i)   489331   (j)   13800000

Question 3:   Round each of the following numbers to 1 significant figure

(a)   2.9   (b)   3.2   (c)   5.7   (d)   46.81   (e)   57.25   (f)   80.96   (g)   94.9

(h)   115.1   (i)   8.482   (j)   13.65   (k)   66.321   (l)   5501.4   (m)   48.02   (n)   99.99

Question 4:   Round each of the following numbers to 1 significant figure

(a)   0.54   (b)   0.86   (c)   0.161   (d)   0.048   (e)   0.0943   (f)   0.0071   (g)   0.0038

(h)   0.06482 (i)   0.8835   (j)   0.00064 (k)   0.00098 (l)   0.00002789

Question 5:   Round each of the following numbers to 2 significant figures

(a)   844   (b)   665   (c)   129   (d)   2840   (e)   9250   (f)   1359   (g)   298

(h)   504   (i)   999   (j)   3841   (k)   48500   (l)   13.7   (m)   58.3   (n)   49.6

(o)   1.41   (p)   42.64   (q)   0.3189 (r)   22490   (s)   186110 (t)   0.04912 (u)   4.98

(v)   997826 (w)   2.99517 (x)   0.06014

Question 6: Round each of the following numbers to 3 significant figures

(a) 9433   (b) 1891   (c) 2496   (d) 3.226   (e) 37756   (f) 57147   (g) 7.0078

(h) 51.564   (i) 0.90341   (j) 2.7892   (k) 0.08906   (l) 0.007812 (m) 9909.1   (n) 0.6006

Apply

Question 1: In an election 43.8% of people voted for a candidate.
Round this figure to one significant figure

Question 2: 32641 people watch a rugby match between Italy and Argentina.
Round this number to 2 significant figures.

Question 3: Round the following numbers to 1 significant figure

(a) eight million, six hundred thousand   (b) the product of 19 and 351

Question 4: Tom has been asked to round the number on the calculator to 2 significant figures.
Tom says the answer is 516.16

Can you explain Tom's mistake?

516.158
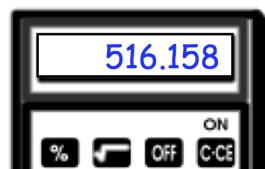
Question 5: The population of Frome to 2 significant figures is 26,000.

(a) Write down the lowest number of people that could live in Frome?

(b) Write down the greatest number of people that could live in Frome?

Frome
Population 26,000
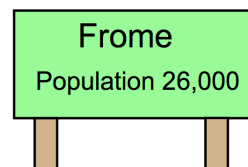
Question 6: Round 7.494×10^7 to 2 significant figures.
Give your answer as an ordinary number.

Answers

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Examples

Workout

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Question 1:   Arrange in order from smallest to largest

(a)   3.7, 3.5, 3.9, 3.4, 3.8

(b)   9.2, 2.9,   5.4,   1.8, 8.7

(c)   4.6, 4.9, 14.1, 0.9, 1.2

(d)   8.13, 8.05, 8.24, 8.09, 8.15, 8.02

(e)   1.53, 1.48, 1.59, 1.44, 2.11, 0.98

(f)   0.59, 1.24, 0.45, 1.34, 0.88, 2.01

Question 2:   Arrange in order from smallest to largest

(a)   1.2, 1.08, 1.13, 1.6, 1.29

(b)   5.25, 5.2, 5.19, 5.08, 5.1, 5.21

(c)   40.6, 46.1, 40.49, 40.68, 46, 46.09

(d)   0.24, 0.3, 0.125, 0.2, 0.199, 0.18

(e)   0.82, 0.082, 0.9, 0.807, 0.8

(f)   65, 6.5, 0.65, 7.65, 0.076, 7

(g)   0.25, 0.3, 0.2, 0.06, 0.19

(h)   7.81, 7.49, 7.9, 7.007, 7.1, 7.107

(i)   10.083, 10.08, 10.009, 10.56, 10.3

(j) 0.342, 0.075, 0.256, 0.34, 0.6, 0.4

Question 3:   Place the correct sign, < or > between the following pairs of decimals

(a) 6.3 ☐ 6.7

(b) 0.8 ☐ 0.5

(c) 2.2 ☐ 2.15

(d) 8.21 ☐ 8.9

(e) 9.099 ☐ 9.0971

(f) 1.205 ☐ 1.23

Apply

Question 1:   Arrange these temperatures in order, from lowest to highest

(a) 11 °C, 10.8°C, 12.3 °C, 15 °C, 12.7 °C

(b) 8.5 °C, 0.7 °C, −3 °C, 0.9 °C, 6 °C, 1.3 °C, −5.1°C
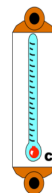
Question 2:   Arrange these amounts of money in order, from highest to lowest.

(a)   £6.74, £10, £1.99, £8, £3.30, £2

(b)   80p, £1, £0.09, 23p, £2.75, £0.82, £20

Question 3: The distance of various landmarks from Big Ben are listed below.
Arrange the landmarks in order, from closest to furthest.

London Eye   0.41 miles
Wembley   11.62 miles
Buckingham Palace   0.8 miles
Trafalgar Square   0.63 miles
Hyde Park   2.27 miles
Thorpe Park   24.7 miles

Question 4: Arrange these measurements in order from largest to smallest

(a) 6.2m, 6.077m, 6.31m, 6.19m, 6.4m, 6.009m

(b) 5kg, 800g, 1.2kg, 90g, 0.6kg

Question 5: The heights of seven footballers are listed below.

1.9m, 1.82m, 1.78m, 1.8m, 1.88m, 1.86m, 1.7m

(a) Arrange the heights in order from smallest to largest.

(b) Write down the median height.

(c) A player is picked at random.
Write down the probability that he is over 1.85m.

Question 6: The lengths of time that it takes to complete a jigsaw are below.

0.5 hours, 1.25 hours, 100 minutes, 0.75 hours, 40 minutes,

2 hours, 1.5 hours, 180 minutes,   61 minutes,   0.25 hours.

(a) Arrange the times in order, from quickest to longest.

(b) What fraction of the people completed the jigsaw in under 1 hour?

(c) What percentage of people took 2 hours or longer?

Answers

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Examples

Workout

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Question 1:   Work out the answers to the following additions

(a) 4.5 + 2.3   (b) 8.4 + 1.7   (c) 0.7 + 0.5   (d) 2.8 + 10.3

(e) 13.4 + 28.9   (f) 206.2 + 72.8   (g) 6.4 + 15.9   (h) 0.5 + 0.8 + 0.1

(i) 9.7 + 1.4 + 1.3   (j) 16.8 + 3.9 + 102.2 + 87.4

Question 2:   Work out these additions

(a) 0.14 + 0.53   (b) 0.35 + 0.65   (c) 2.47 + 3.34   (d) 4.93 + 2.25

(e) 4.77 + 1.84   (f) 10.38 + 6.81   (g) 7.83 + 12.49   (h) 0.56 + 107.08

(i) 9.85 + 2.63 + 0.89   (j) 0.08 + 0.12 + 0.87 + 1.93 + 2.06

Question 3:   Complete these additions

(a) 6.5 + 1.73   (b) 0.56 + 1.6   (c) 2.45 + 7.8   (d) 8.67 + 3.9

(e) 9.2 + 4.87   (f) 1.08 + 2.6   (g) 20.6 + 15.84   (h) 41.8 + 5.35

(i) 7.4 + 2.329   (j) 0.018 + 2.39   (k) 9.224 + 8.89   (l) 0.293 + 9.815

(i) 4.52 + 0.3 + 0.79 + 1.4   (j) 0.94 + 4.8 + 12.09 + 5.63

Apply

Question 1:   Richard buys a notebook that costs £6.78 and a pen that costs £4.19.
               Work out the total cost.

Question 2:   Holly is saving money.
               In January, she saves £15.15
               In February, she saves £8.82
               In March, Holly saves £13.37
               Work out how much she has saved in total.

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Question 3: David drives 4.8 miles to Bristol and a further 6.7 miles to Bath.
Work out how far he drives in total.

Question 4: Mr Jenkins has three pieces of rope.
The pieces of rope are 2.35m, 1.8m and 3.06m long.
Work out the total length of the pieces of rope.

Question 5: Shown is a rectangle.
Calculate the perimeter.

11.26cm

5.6cm
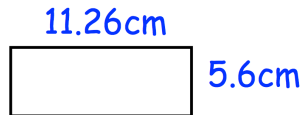
Question 6: Work out the missing number.

$$\boxed{} - 5.28 = 10.9$$

Question 7: Shown is a shape made from three identical squares and three identical rectangles.
Calculate the perimeter of the shape.

4.2cm

1.5cm
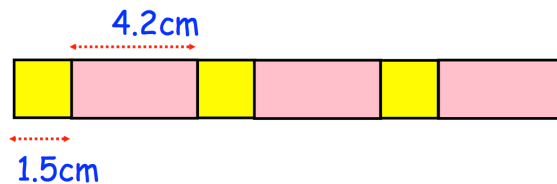
Question 8: The first four terms of a number sequence are
2.52, 2.71, 2.9, 3.09, ..., ..., ...
Work out the next two terms.

Question 9: Grace is working out 12.4 + 3.18
Can you spot any mistakes?

	1	2 .	4
+	3 .	$_1$1	8
	4 .	4	2

Question 10: Neil writes down four numbers with a sum of 50.
All the numbers have two decimal places and no two numbers are the same.
Write down four possible numbers Neil could have written down.

Answers

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Examples

Workout

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Question 1: Work out the answers to the following subtractions

(a)   0.9 – 0.1

(b) 0.8 – 0.3

(c) 0.7 – 0.6

(d) 0.5 – 0.2

(e)   1.2 – 0.3

(f) 1.5 – 0.4

(g) 1.8 – 0.6

(h) 1.9 – 1.2

(i)   2.4 – 0.5

(j) 3.8 – 2.5

(k) 4.1 – 1.8

(l) 5.5 – 3.1

(m) 8.7 – 1.3

(n) 9.2 – 5.8

(o) 7.3 – 3.9

(p) 8.5 – 0.9

Question 2: Work out the answers to the following subtractions

(a)   7.7 – 1.5

(b) 8.5 – 4.1

(c) 19.7 – 18.6

(d) 26.2 – 5.2

(e)   54.5 – 23.1

(f) 80.4 – 10.3

(g) 16.6 – 9.2

(h) 85.7 – 50.4

(i)   7.3 – 4

(j) 8.6 – 2

(k) 24.9 – 6

(l) 15.1 – 9

(m) 7 – 1.3

(n) 9 – 3.6

(o) 20 – 4.4

(p) 32 – 8.7

Question 3: Work out these subtractions

(a)   0.39 – 0.23

(b) 0.47 – 0.15

(c) 0.75 – 0.41

(d) 0.99 – 0.65

(e)   0.46 – 0.18

(f) 0.81 – 0.55

(g) 1.24 – 0.72

(h) 2.13 – 1.66

(i)   8.63 – 0.4

(j) 5.55 – 3.1

(k) 8.13 – 0.5

(l) 3.84 – 1.9

(m) 10.4 – 0.15

(n) 5.8 – 1.92

(o) 14.5 – 0.77

(p) 12 – 4.55

Question 4: Complete these subtractions

(a)   40.5 – 19.3

(b) 88.3 – 52.58

(c) 155.73 – 48.89

(d) 203.5 – 51.64

(e)   498 – 70.94

(f) 500 – 384.11

(g) 8200 – 901.3

(h) 10000 – 4901.33

Question 5: Work out each of the following

(a)   1.284 – 0.151

(b) 2.028 – 1.115

(c) 39.45 – 6.061

(d)   40.5 – 7.258   (e) 204.1945 – 203.7885   (f) 716 – 409.4822

Apply

Question 1:   Paul buys a book that costs £6.89 and pays with a £10 note.
How much change should Paul get?
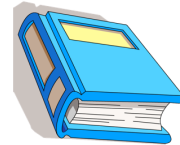
Question 2:   Jennifer has 1.2kg of flour.
She uses 0.75kg of the flour to bake a cake.
How much flour does she have left?

Question 3:   The perimeter of the triangle is 16.1cm.
Work out the length of the missing side.

6.1cm

?

5.3cm
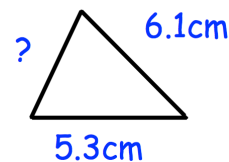
Question 4:   The first four terms of a number sequence are

15.8,   15.1,   14.4,   13.7,   __,   __

Work out the next two terms.

Question 5:   Find the missing numbers

$8.41 + \boxed{} = 25$

$17.27 - \boxed{} = 1.89$

Question 6:   Maxine buys 3 magazines that cost £1.99, £2.45 and £3.70.
She pays with a £50 note.
Work out how much change she should receive?

Question 7:   Angus is working out 7.23 – 1.91
Can you spot any mistakes?

7	•	2	3
− 1	•	9	1
6		7	2

7.23 - 1.91 = 672

Answers

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Corbett maths

Examples

Workout

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Question 1:   Work out the answers to the following multiplications

(a)   1.2 × 4   (b)   3.2 × 3   (c)   5.3 x 2   (d)   7.3 x 3

(e)   1.6 × 4   (f)   2.9 × 5   (g)   4.2 × 6   (h)   9.5 x 7

(i)   6.7 x 8   (j)   3.8 x 9   (k)   12.8 x 3   (l)   24.3 x 4

(m)   37.5 x 6   (n)   52.8 x 7   (o)   173.2 x 3   (p)   215.8 x 6

(q)   1243.7 x 9   (r)   79.5 x 8

Question 2:   Work out the answers to the following multiplications

(a)   1.26 x 2   (b)   2.63 x 3   (c)   5.14 x 3   (d)   6.28 x 4

(e)   7.53 x 5   (f)   0.38 x 8   (g)   9.62 x 6   (h)   12.38 x 7

(i)   16.42 x 9   (j)   109.34 x 4   (k)   9.08 x 3   (l)   12.04 x 7

(m)   0.383 x 3   (n)   1.442 x 6   (o)   8.291 x 3   (p)   9.623 x 5

(q)   3.706 x 8   (r)   4.953 x 7   (s)   0.482 x 8   (t)   0.085 x 7

(u)   1.3842 x 3   (v)   4.3342 x 6   (w)   8.2039 x 5   (x)   7.3112 x 9

(y)   512.83 x 6   (z)   293.421 x 4

Question 3:   Work out the answers to the following multiplications

(a)   1.24 x 13   (b)   2.51 x 17   (c)   12.5 x 23   (d)   3.28 x 21

(e)   6.35 x 35   (f)   7.65 x 37   (g)   58.2 x 46   (h)   4.23 x 52

(i)   0.28 x 57   (j)   0.817 x 63   (k)   38.43 x 19   (l)   5.45 x 87

(m)   12.32 x 73   (n)   2.3 x 123   (o)   4.7 x 253   (p)   8.6 x 351

(q)   2.03 x 152   (r)   1.02 x 607

Question 4:   Work out the answers to the following multiplications

(a)   0.2 x 0.3   (b)   0.7 x 0.2   (c)   0.9 x 0.4   (d)   0.8 x 0.6

(e)   0.7 x 0.7   (f)   0.6 x 0.5   (g)   0.8 x 0.5   (h)   0.5 x 0.4

(i)   0.8 x 0.1   (j)   0.07 x 0.5   (k)   0.04 x 0.2   (l)   0.8 x 0.07

(m)   0.06 x 0.9   (n)   0.04 x 0.06   (o)   0.08 x 0.03   (p)   0.02 x 0.03

(q)   0.003 x 0.6   (r)   0.9 x 0.002   (s)   0.008 x 0.6   (t)   0.005 x 0.4

(u)   0.007 x 0.02   (v)   0.008 x 0.09   (w)   0.04 x 0.004   (x)   0.005 x 0.003

(y)   0.008 x 0.05   (z)   0.009 x 0.008

Question 5:   Work out the answers to the following multiplications

(a)   3.1 x 0.5   (b)   6.3 x 0.3   (c)   5.4 x 0.7   (d)   9.2 x 0.6

(e)   4.8 x 0.9   (f)   2.4 x 3.2   (g)   9.1 x 1.3   (h)   5.5 x 7.7

(i)   1.7 x 4.3   (j)   9.4 x 4.9   (k)   0.13 x 0.7   (l)   0.48 x 0.3

(m)   0.54 x 0.9   (n)   0.18 x 0.17   (o)   8.3 x 0.37   (p)   3.5 x 0.74

(q)   0.94 x 0.02   (r)   0.38 x 0.06   (s)   0.039 x 0.7   (t)   0.084 x 1.2

(u)   8.1 x 0.05   (v)   9.4 x 0.082   (w)   0.0048 x 0.12

Question 6:   Work out the answers to the following multiplications

(a)   1.29 x 1.4   (b)   3.52 x 2.4   (c)   4.92 x 0.34   (d)   8.12 x 0.29

(e)   6.3 x 2.46   (f)   9.2 x 7.15   (g)   0.843 x 1.9   (h)   0.548 x 2.7

(i)   6.18 x 5.1   (j)   18.2 x 6.4   (k)   5.03 x 2.8   (l)   40.8 x 5.3

Multiplying Decimals
Videos 204 on www.corbettmaths.com

Apply

Question 1:   Regan is paid £6.70 per hour. He works 8 hours in a week.
              Work out how much Regan should be paid.

Question 2:   Calculate the output

Input   Output

3.8 → x 7 → ?
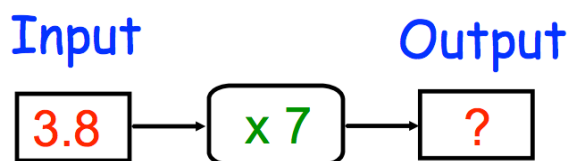
Question 3:   Calculate the area of the rectangle

19.4cm

8cm
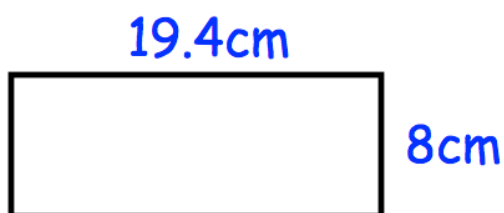
Question 4:   A bottle of cola costs £1.29
              Calculate the total cost of 6 bottles of cola.

COLA

Question 5:   Mr and Mrs Jones bring their 5 children to a museum.

Adults   £17.60 each
Children   £7.55 each

Work out the total cost for the family.

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Question 6: Class 8A are going on a trip to a windmill.

The trip costs £3.70 each and there are 26 students in 8A.
How much money should be collected?

Question 7: Mr.Jenkins is building a fence for his garden.
The fence costs £12.60 per metre to build.
The fence is 5.3 metres long.

Work out the total cost of building the fence.

Question 8: Calculate the area of this rectangle.

6.8cm

2.7cm
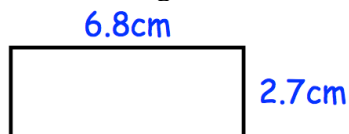
Question 9: Here are the prices of some fruit in a shop.

£0.97 per kilogram

£1.07 per kilogram

£1.46 per kilogram

Find the total cost of 1.2kg of apples, 3.5kg of oranges and 1.9kg of bananas.

Answers

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Examples

Workout

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Question 1:   Work out

(a)   4.6 ÷ 2   (b) 6.5 ÷ 5   (c) 9.6 ÷ 3   (d) 8.4 ÷ 4

(e)   7.2 ÷ 3   (f)   6.8 ÷ 4   (g) 18.5 ÷ 5   (h) 9.6 ÷ 8

(i)   14.4 ÷ 6   (j)   27.9 ÷ 9   (k) 9.1 ÷ 7   (l)   36.5 ÷ 5

(m) 33.2 ÷ 4   (n) 19.2 ÷ 3   (o) 27.6 ÷ 6   (p) 42.4 ÷ 8

Question 2:   Work out

(a)   3.96 ÷ 3   (b) 0.75 ÷ 5   (c) 8.56 ÷ 4   (d) 0.528 ÷ 6

(e)   5.81 ÷ 7   (f)   0.657 ÷ 9   (g) 2.176 ÷ 8   (h) 0.238 ÷ 7

(i)   0.119 ÷ 7   (j)   0.072 ÷ 6   (k) 2.556 ÷ 3   (l)   3.325 ÷ 5

(m)   701.2 ÷ 4   (n) 9.927 ÷ 9   (o) 12.065 ÷ 5   (p) 0.16024 ÷ 4

Question 3:   Work out

(a)   1.3 ÷ 2   (b) 2.9 ÷ 2   (c) 1.4 ÷ 5   (d) 24.3 ÷ 5

(e)   5.4 ÷ 4   (f)   0.038 ÷ 5   (g) 1.4 ÷ 8   (h) 2.13 ÷ 6

(i)   0.284 ÷ 8   (j)   54.3 ÷ 6   (k) 47.5 ÷ 8   (l)   7.42 ÷ 3

Question 4:   Work out the following divisions

(a)   8.4 ÷ 12   (b) 0.143 ÷ 11   (c) 34.5 ÷ 15   (d) 0.322 ÷ 14

(e)   2.266 ÷ 22   (f)   7.68 ÷ 12   (g) 0.56 ÷ 16   (h) 15.75 ÷ 25

(i)   2.12 ÷ 40   (j)   77.25 ÷ 75   (k) 0.9936 ÷ 23   (l) 3.52 ÷ 110

Dividing Decimals by Whole Numbers
Video 93 on www.corbettmaths.com

Apply

Question 1: Four friends share £6.52 equally.
How much do they each receive?

Question 2: James has 3.65m of rope into 5 pieces of equal length.
How long is equal piece of rope?

Question 3: The perimeter of a square is 53.3cm.
Work out the length of equal side.

?

Perimeter = 53.3cm

Question 4: SuperSaver sells 6 eggs for £1.14
TopBuys sells 8 eggs for £1.68
BestBuys sells 12 eggs for £2.64

Which shop is best value?

Question 5: Roger is organising a trip to a museum.
The total price of the tickets is £103.50
The total price for the coach is £64.80
If nine people are going on the trip, how much should they pay each?

Question 6: A shop charges 12p to photocopy one page in full colour.
Sam has photocopied some pages in colour and the total cost is £16.08
How many pages did he photocopy?

Question 7: The perimeter of a regular octagon is 4.096cm
Calculate the length of each side.

Answers

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Examples

Workout

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Question 1:   Work out

(a) 6 ÷ 0.2

(b) 4 ÷ 0.5

(c) 12 ÷ 0.3

(d) 2 ÷ 0.1

(e) 25 ÷ 0.5

(f) 15 ÷ 0.3

(g) 0.8 ÷ 0.2

(h) 0.9 ÷ 0.3

(i) 1.4 ÷ 0.2

(j) 3 ÷ 0.6

(k) 14 ÷ 0.7

(l) 2.4 ÷ 1.2

(m) 3.5 ÷ 0.5

(n) 45 ÷ 1.5

(o) 0.15 ÷ 0.5

(p) 0.72 ÷ 0.2

(q) 0.48 ÷ 0.3

(r) 0.36 ÷ 0.9

(s) 0.048 ÷ 0.2

(t) 0.095 ÷ 0.5

(u) 0.072 ÷ 0.6

(v) 1.05 ÷ 0.5

(w) 4.29 ÷ 0.3

(x) 0.784 ÷ 0.7

Question 2:   Work out the following

(a) 2 ÷ 0.05

(b) 3 ÷ 0.02

(c) 6 ÷ 0.03

(d) 12 ÷ 0.04

(e) 15 ÷ 0.01

(f) 60 ÷ 0.06

(g) 0.08 ÷ 0.04

(h) 0.06 ÷ 0.02

(i) 0.4 ÷ 0.05

(j) 0.8 ÷ 0.02

(k) 0.27 ÷ 0.09

(l) 0.28 ÷ 0.07

(m) 1.2 ÷ 0.06

(n) 4.9 ÷ 0.07

(o) 0.058 ÷ 0.02

(p) 0.075 ÷ 0.05

(q) 1.278 ÷ 0.06

(r) 0.0476 ÷ 0.07

(s) 360 ÷ 0.12

(t) 45 ÷ 0.15

Question 3:   Work out

(a) 0.6 ÷ 0.02

(b) 34 ÷ 0.2

(c) 0.9 ÷ 0.5

(d) 2.4 ÷ 0.08

(e) 6 ÷ 0.005

(f) 12 ÷ 0.1

(g) 1.4 ÷ 0.04

(h) 0.066 ÷ 0.3

(i) 0.06 ÷ 0.15

(j) 20 ÷ 0.004

(k) 2.672 ÷ 0.08

(l) 2.75 ÷ 0.05

(m) 0.275 ÷ 0.005

(n) 750 ÷ 2.5

(o) 5.6 ÷ 0.004

(p) 360 ÷ 1.2

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Apply

Question 1:   A sweet cost £0.04
How many sweets can I buy for £20?

Question 2:   Mia has 20 metres of ribbon.
She is cutting it into pieces that are 0.8m long.
How many 0.8m pieces of ribbon will she have?

Question 3:   Yasmin has £17 in five pence pieces.
How many five pence pieces does she have?

Question 4:   Find the missing numbers

$$0.4 \times \boxed{} = 20.8$$

$$0.7 \times \boxed{} = 45$$

Question 5:   A teacher is placing textbooks that are 2.5cm thick on a bookshelf.
The teacher wants to place 60 textbooks on the shelf.
The bookshelf is 160cm long.
Does the teacher have enough room on the bookshelf for the textbooks?

Question 6:   A grain of rice has a mass of 0.015g
How many grains are there in 300g of rice?

Question 7:   A type of pebble has a mass of 0.8g
How many pebbles are there in 40kg?

Question 8:   Use approximations to estimate the answer to the following

(a)
$$\frac{9.89^2}{0.502}$$

(b)
$$\frac{6.97 \times 201.82}{0.391}$$

(c)
$$\frac{1802.7 - 397.2}{0.699}$$

Answers

Click here

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Examples

Workout

Click here

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Question 1:   If a = 7   b = 10   c = 3   d = 8   and e = 15
Find the value of each expression.

(a) a + 5

(b) b – 4

(c) c + d

(d) e – d

(e) 2a

(f) 4b

(g) 3e

(h) 5c

(i) $\dfrac{b}{2}$

(j) $\dfrac{e}{5}$

(k) $\dfrac{d}{4}$

(l) $\dfrac{a}{2}$

(m) a^2

(n) b^2

(o) c^2

(p) d^2

(q) 2a + 1

(r) 3b – 7

(s) 9c + 11

(t) 4e – 45

(u) 2a + 3c

(v) 4d – b

(w) 5a + 2d

(x) e – 4c

(y) 30 – 4a

(z) 15 – 3c

Question 2:   If f = 5   g = 6   h = 4   and i = 2
Find the value of each expression.

(a) fg

(b) hi

(c) fgh

(d) i^3

(e) $\sqrt{h}$

(f) 3f + 2g

(g) 5h + 7i

(h) 9h – 7i

Question 3:   If a = –2   b = 5   c = –6   d = 10   and e = 9
Find the value of each expression.

(a) a + 4

(b) b – 8

(c) c + e

(d) a – d

(e) d – c

(f) 2c

(g) 7a

(h) –7b

(i) 2d + 3c

(j) 6e + 3a

(k) 5a + 7

(l) 20 + 4a

(m) ac

(n) 40 – d

(o) 2e – a

(p) bd + a

(q) $\dfrac{a}{2}$

(r) $\dfrac{d}{4}$

(s) $\sqrt{e}$

(t) c^2

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Question 4:   If   a = 1.5   b = 4   c = 6   d = 0.5   and   e = −3
                    Find the value of each expression.

(a) 4(a + d)   (b) 5(c + b)   (c) 3(10 − e)   (d) abc

(e) e^3 (f) d^2 (g) $5b^2$ (h) $8e^2 + 3$

(i) $\dfrac{b + 2}{3}$ (j) $\dfrac{2c - e}{4}$ (k) $\dfrac{10d + 4b}{7}$

Question 5:   P = 2L + 2W,   work out P if L = 8 and W = 3.

Question 6:   C = 15h + 30,   work out C if h = 6.

Apply

Question 1:   The cost of hiring a car for a number of days is calculated using the formula

              Hire Cost = 30 x Number of Days + 50

              (a) Calculate the cost of hiring a car for 4 days.
              (b) Calculate the cost of hiring a car for 9 days.
              (c) The hire cost is £110, how many days was the car hired for?
              (d) The hire cost is £380, how many days was the car hired for?

Question 2:   The cost of photocopying is given as:

          Cost in pence = 3 x number of black & white pages + 15 x number of colour pages

              (a) Ella orders 20 black & white pages and 6 colour pages, work out the cost.
              (b) Tom orders 400 black & white pages and 70 colour pages, work out the cost.

Question 3:   The time in minutes, taken to cook a chicken is given by the formula

              Time = 40 minutes per kilogram plus 20 minutes

              (a) Work out the time taken to cook a 5kg chicken.
              (b) Work out the time taken to cook a 2.5kg chicken.

Question 4:   This formula is used to calculate the weekly pay of a letting agent.

Weekly pay = basic pay + number of houses rented x bonus

The basic pay is £400 and a bonus of £75 is paid for each house rented.
Mrs Lewis rents out 5 houses in one week.
Calculate her pay.

Question 5:   This formula can be used to convert between Celsius and Fahrenheit:

$F = 1.8C + 32$

(a) Work out the value of F when C = 10
(b) Work out the value of F when C = 20
(c) Work out the value of F when C = 4
(d) Work out the value of C when F = 35.6
(e) Work out the value of C when F = 41
(f) Work out the value of C when F = 112
(g) Find a temperature when F and C are the same value.

Answers
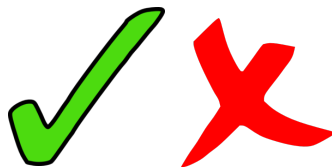
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Examples

Workout

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Question 1:   Simplify each of the following

(a) y + y + y + y

(b) w + w + w + w + w

(c) a + a + a + a + a + a

(d) s + s + s

(e) n + n

(f) g + g + g + g – g

(g) y + y + y + y – y – y

(h) p + p – p – p

(i) 3y + 2y

(j) 4a + 3a

(k) 9k + 5k

(l) 7m + m

(m) 15c + 20c

(n) 6w – 3w

(o) 10y + 3y – 5y

(p) 20t – 14t

(q) 7x – 3x – x

(r) 8k – 8k

(s) 7y – 2y + y

(t) 5u – 4u

(u) $y^2 + y^2$

(v) $a^2 + a^2 + a^2$

(w) $c^2 + c^2 + c^2 + c^2 + c^2$

(x) $7y^2 + 3y^2$

(y) $2w^2 + 4w^2 + 8w^2$

(z) $6y^2 – 2y^2 + 3y^2$

Question 2:   Simplify the following expressions

(a) 4u – 6u

(b) 8w – 9w

(c) 4a + 2a – 9a

(d) 2y – 9y

(e) –3g – 2g

(f) –4f + 9f

(g) –m – 7m

(h) $5y^2 – 7y^2$

(i) $6a^2 + 2a^2 – 9a^2$

(j) ab + ab + ab

Question 3:   Simplify the following expressions

(a) 3a + 2b + 4a + b

(b) 7y + 5y + 2h + 2h

(c) g + 8a + 2a + g

(d) 7m + 7p + 8m + p + 2p

(e) 9e + 2 + e + 2

(f) 4 + 3a + 2a + 8

(g) 2y + 4 + 3y – 1

(h) 8 + 3w – w – 3

(i) 5 – 4s – 2 + 10s

(j) 3x + 6y + 5x – 2y

(k) 6m – 2s + 11s + m

(l) 2a + 3b – 2 + a + 3b + 4

(m) 3a – 2b + a – 5b

(n) 2x – 2y – 6x + 5y

(o) y – 4m – 3y – 5m

(p) 7p – 2q – q + 3r + 4r

(q) 11c + 8d – 6c – 11d

Collecting Like Terms
Video 9 on www.corbettmaths.com

Question 4: Simplify the following

(a) $3y^2 + 4ab + 7y^2 + ab$ (b) $9x^2 - 2x - 11x^2 + 5x$ (c) $7ac - 3ab + 9ab - 7ac$

Question 5: Expand and simplify the following

(a) $2(y + 3) + 3(y + 1)$ (b) $8(x + 2) + 3(x + 3)$ (c) $4(x - 1) + 2(x + 3)$

(d) $5x + 3 + 2(x + 9)$ (e) $3(2y + 1) + 4(2y + 5)$ (f) $5(2x + 3) + 2(3x + 1)$

(g) $7(c + 2) + 3(c - 2)$ (h) $5(2a + 7) + 2(9a - 4)$ (i) $9(t + 3) + 3(2t - 11)$

(j) $2(x - 4) + 5(x - 2)$ (k) $6(y - 1) - 2(y + 3)$ (l) $8(x + 2) - 3(x - 2)$

(m) $5(2y - 3) + 3(y - 2)$ (n) $2(4w - 5) - 2(w - 7)$ (o) $5(3y + 7) - 3(2y - 5)$

Apply

Question 1: Write down the perimeter of each shape below

(a)

(b)

(c)
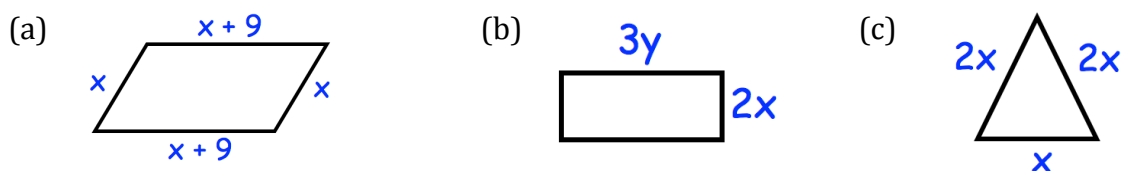
Question 2: A square has a side length of 3x.
Find an expression for the perimeter of the square.

Question 3: $6x + 7y + x - 8y = 7x - y$
Write down three other expressions that are equal to $7x - y$

Question 4: Find an expression for the perimeter of this shape

Answers

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77
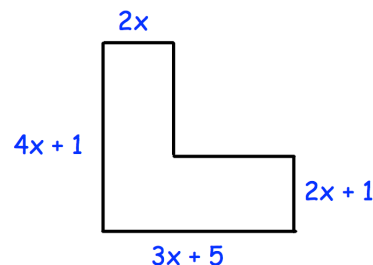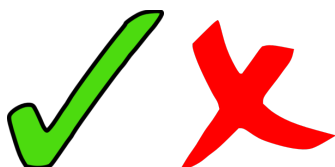
Workout

Question 1:   Convert the following lengths into centimetres (cm)

(a) 4 m   (b) 9 m   (c) 12 m   (d) 59 m

(e) 750 m   (f) 105 m   (g) 2.5 m   (h) 8.2 m

(i) 1.53 m   (j) 0.6 m   (k) 0.38 m   (l) 0.03 m

Question 2:   Convert the following lengths into metres (m)

(a) 300 cm   (b) 700 cm   (c) 900 cm   (d) 1400 cm

(e) 250 cm   (f) 740 cm   (g) 1000 cm   (h) 348 cm

(i) 80 cm   (j) 70 cm   (k) 53 cm   (l) 2 cm

Question 3:   Convert the following lengths into centimetres (cm)

(a) 60 mm   (b) 30 mm   (c) 65 mm   (d) 87 mm

(e) 280 mm   (f) 812 mm   (g) 2030 mm   (h) 9000 mm

(i) 7 mm   (j) 4 mm   (k) 1.3 mm   (l) 0.6 mm

Question 4:   Convert the following lengths into millimetres (mm)

(a) 2 cm   (b) 6 cm   (c) 4.5 cm   (d) 9.2 cm

(e) 13 cm   (f) 78 cm   (g) 124 cm   (h) 520 cm

(i) 0.5 cm   (j) 0.2 cm   (k) 0.8 cm   (l) 0.16 cm

Question 5:   Convert the following lengths into metres (m)

(a) 4 km   (b) 9 km   (c) 13 km   (d) 28 km

(e) 125 km   (f) 300 km   (g) 7000 km   (h) 7200 km

(i) 0.5 km   (j) 0.8 km   (k) 1.2 km   (l) 2.6 km

(m) 0.07 km   (n) 0.02 km   (o) 0.006 km   (p)   1.008 km

Question 6: Convert the following lengths into kilometres (km)

(a) 6000 m   (b) 2000 m   (c) 5500 m   (d) 6400 m

(e) 800 m   (f) 600 m   (g) 450 m   (h) 125 m

(i) 70 m   (j) 90 m   (k) 35 m   (l) 4 m

(m) 90000 m   (n) 40000 m   (o) 340000 m   (p) 90530 m

Question 7: Convert the following lengths

(a) 2 m into mm   (b) 8 m into mm   (c) 6500 mm into m

(d) 9000 mm into m   (e) 48000 cm into km   (f) 9250000 cm into km

(g) 780 mm into m   (h) 4km into cm   (i) 1km into mm

(j) 25000000 mm into km   (k) 0.5 km into cm   (l) 0.023km into mm

Question 8: Convert the following into grams

(a) 2 kg   (b) 7 kg   (c) 19 kg   (d) 20 kg

(e) 1.5 kg   (f) 2.4 kg   (g) 4.7 kg   (h) 0.5 kg

(i) 0.8 kg   (j) 0.16 kg   (k) 0.03 kg   (l) 0.008 kg

Question 9: Convert the following into kilograms

(a) 7000 g   (b) 3000 g   (c) 12000 g   (d) 40000 g

(e) 3945 g   (f) 600 g   (g) 850 g   (h) 735 g

(i) 60 g   (j) 75 g   (k) 2 g   (l) 78.1 g

Question 10: Convert the following into kilograms

(a) 5 tonnes   (b) 8 tonnes   (c) 15 tonnes   (d) 0.6 tonnes

(e) 1.6 tonnes   (f) 9.25 tonnes   (g) 0.3 tonnes   (h) 0.06 tonnes

Question 11: Convert the following into millilitres

(a) 2 litres   (b) 6 litres   (c) 24 litres   (d) 1.8 litres

(e) 0.6 litres   (f) 0.125 litres   (g) 0.07 litres   (h) 2.05 litres

Question 12: Convert the following into litres

(a) 8000 ml   (b) 3000 ml   (c) 76000 ml   (d) 750 ml

(e) 540 ml   (f) 121 ml   (g) 88 ml   (h) 1035 ml

Apply

Question 1: Jack is 1.36 metres tall.
His friend Ian is 5 centimetres taller than Jack.
What height is Ian? Give your answer in metres.

Question 2: Mary runs 600m every day.
Work out how far Mary runs in one week.
Give your answer in kilometres.

Question 3: Karl is baking a loaf of bread and needs 0.8 kg of flour.
He has 72 grams of flour.
How much more flour does Karl need?
Give your answer in grams.
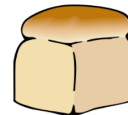
Question 4: James and Jack buy a 3 litre carton of orange juice.
Each boy drinks 650 ml of orange juice.
How much orange juice is left?
Give your answer in litres.

Question 5: Rebecca has two dogs, Lucky and Pepe.
Lucky weighs 5.4 kilograms.
Pepe is 800 grams lighter than Lucky.
Work out how much Pepe weighs.
State your units.

Question 6: A 2p coin has a mass of 7 grams.
Find the total mass of £80 worth of 2p coins.
Give your answer in kilograms.

Workout

Question 1: The following shapes are drawn on centimetre-squared paper. Find the perimeter of each shape.

(a)

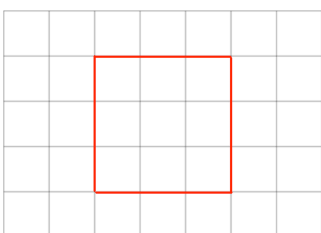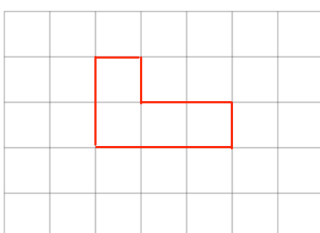(b)

(c)

(d)

(e)
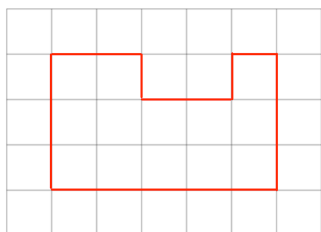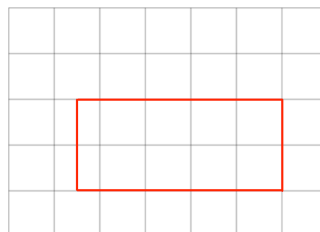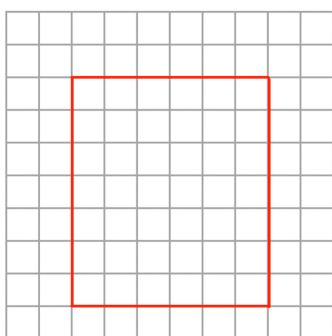
(f)

Question 2: The following shapes are drawn on centimetre-squared paper. Find the perimeter of each shape.

(a)

(b)

(c)

(d)

(e)

(f)

81
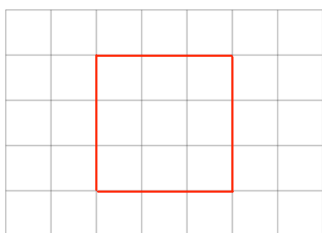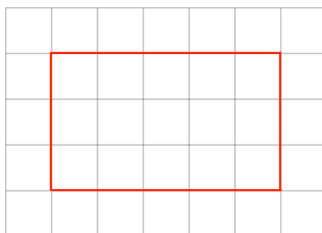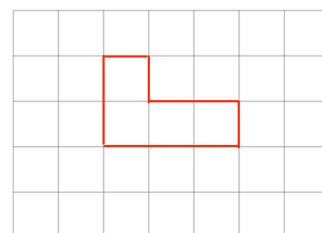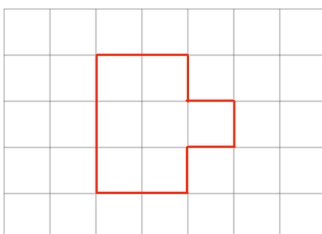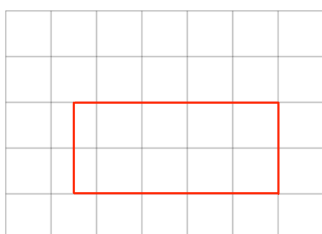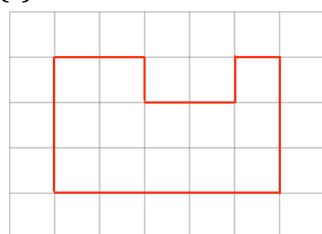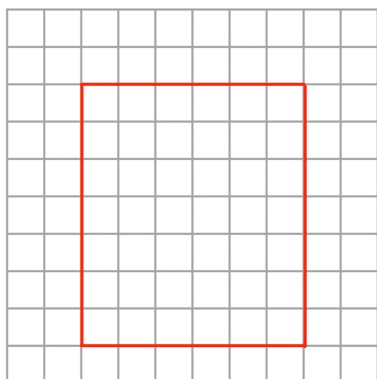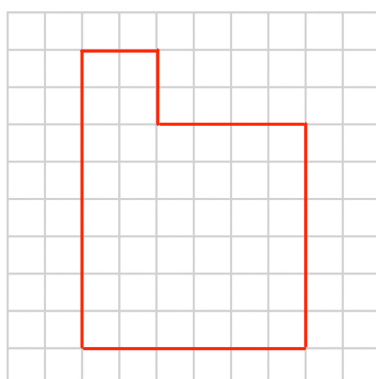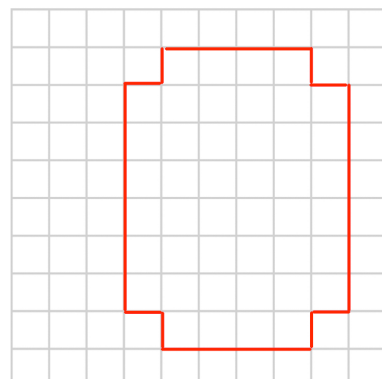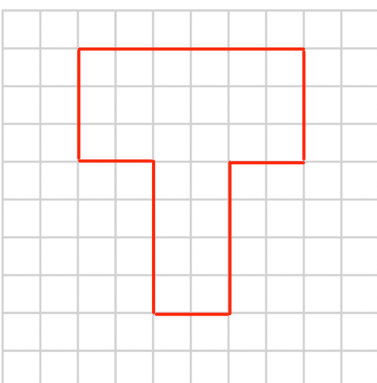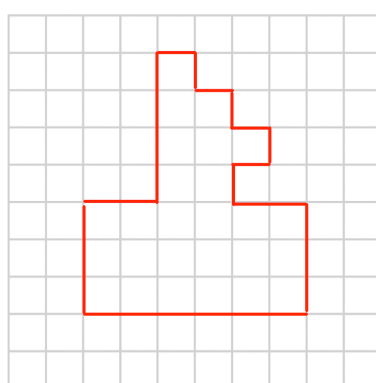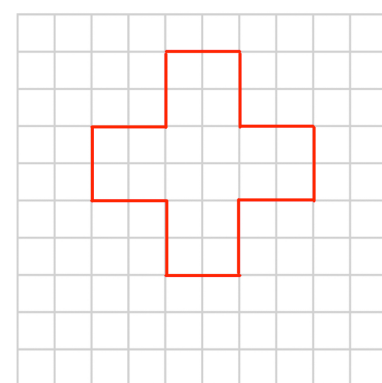
Apply

Question 1:   On centimetre-square paper, draw a rectangle with a perimeter of 14cm

Question 2:   On centimetre-square paper, draw three different rectangles with an perimeter of 18cm

Question 3:   A square has a perimeter of 24cm.
(a) Draw this square on centimetre-square paper.
(b) Find the area of the square.

Question 4:   A rectangle has an area of 12cm².
(a) Draw three possible rectangles on centimetre-square paper.
(b) Find the perimeter of three rectangles.

Question 5:   A square has an area of 49cm²
(a) Draw this square on centimetre-square paper.
(b) Find the perimeter of the square.

Question 6:   Draw a shape that has one line of symmetry and a perimeter of 10cm

Question 7:   Jasmine says the perimeter of this shape is 12cm.
Explain her mistake.
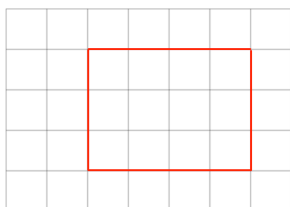
Question 8:   An "equable" shape is a shape where the area and perimeter of the shape have the same numerical value.

The shape shown has an area of 26cm²
and a perimeter of 26cm.

Draw four more equable shapes.
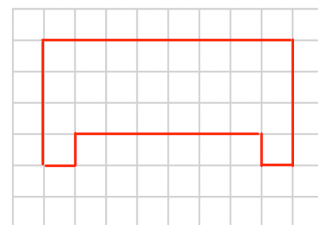
Question 9:   Martin has drawn the shape below.
He says it is possible to draw a shape with the same area but a larger perimeter.
Show Martin is correct.
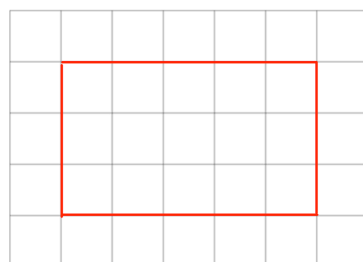
Examples

Workout

Click here

Scan here

Question 1:   Work out the perimeter of each shape below

(a)
5cm
3cm   3cm
5cm

(b)
10cm
6cm
8cm

(c)
7cm
7cm   7cm
7cm

(d)
4cm   4cm
5cm   5cm
6cm

(e)
2cm
4cm
7cm   8cm
3cm
10cm

(f)
9cm   9cm
14cm   14cm
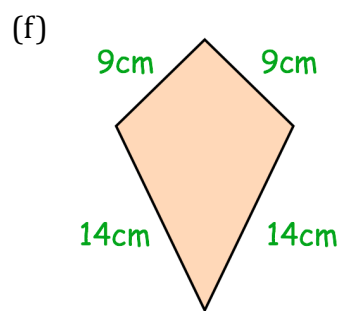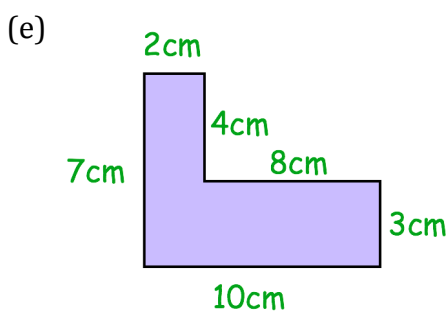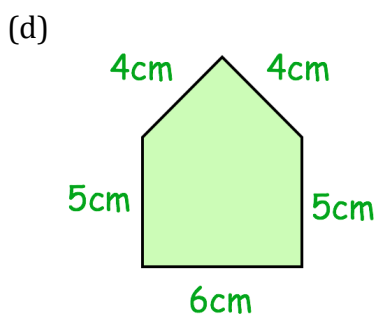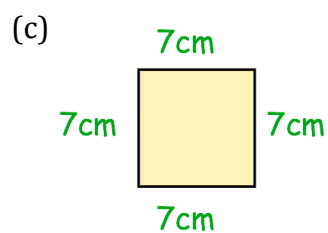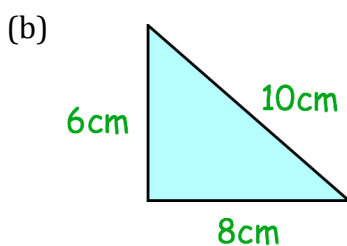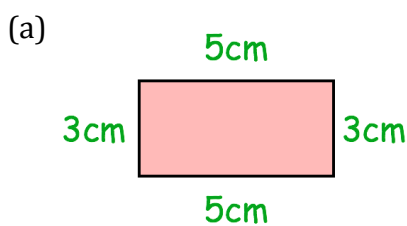
Question 2:   Find the perimeter of each of these rectangles.

(a)
6cm
20cm

(b)
17cm
7cm

(c)
36mm
19mm

(d)
1.8m
1.5m

(e)
105m
75m

(f)
9cm
6mm
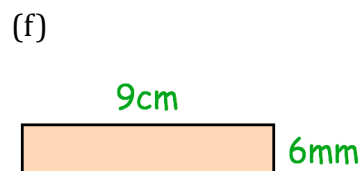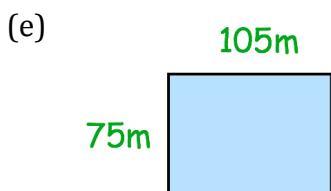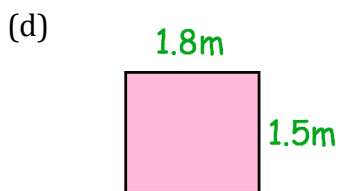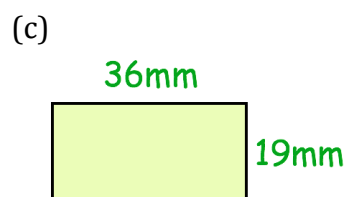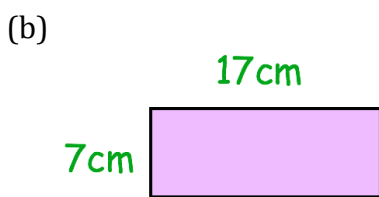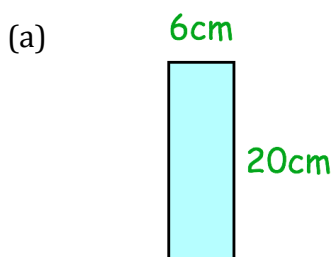
Question 3:   Work out the perimeter of each of these squares

(a)
15cm

(b)
34cm

(c)
0.9m

83
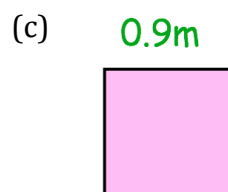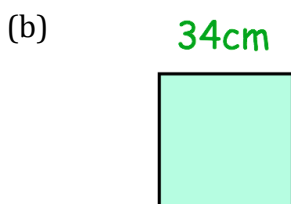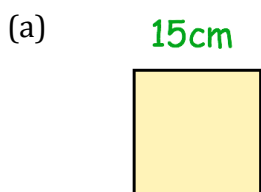
Question 4: Work out the perimeter of each of these equilateral triangles

(a)

8cm

(b)

4.5cm

(c)

71m

(d)

0.26cm
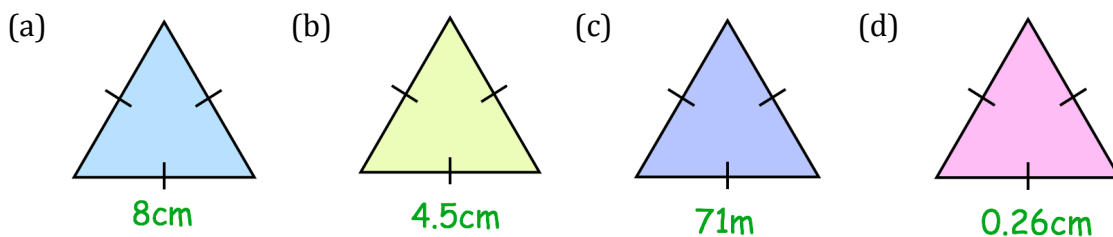
Question 5: Calculate the perimeter of each of these isosceles triangles

(a)

22cm

14cm

(b)

7cm

10cm

(c)

8.5cm   9cm
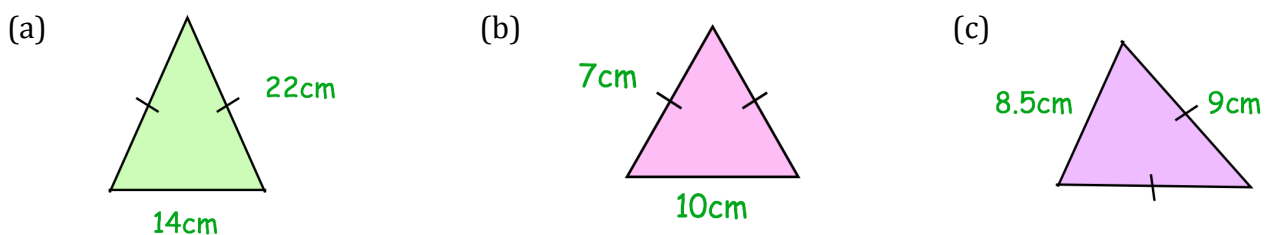
Question 6: Work out the perimeter of each of these regular shapes

(a)   7cm

(b)

17cm

(c)

3.1cm
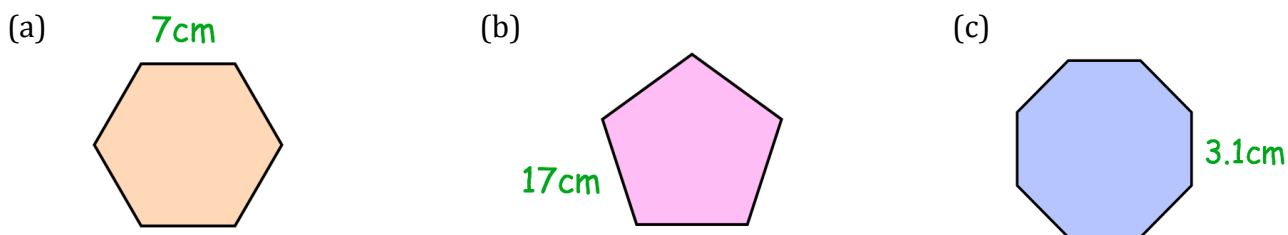
Question 7: Find the perimeter of each of these shapes

(a)   6cm

11cm

3cm

10cm

(b)

1.6cm

0.9cm

2.7cm

1.8cm

(c)

9m

5m

6m

12m

(d)

7cm

4cm   3cm

6cm

9cm

(e)

4cm   3cm

6cm

11cm

20cm
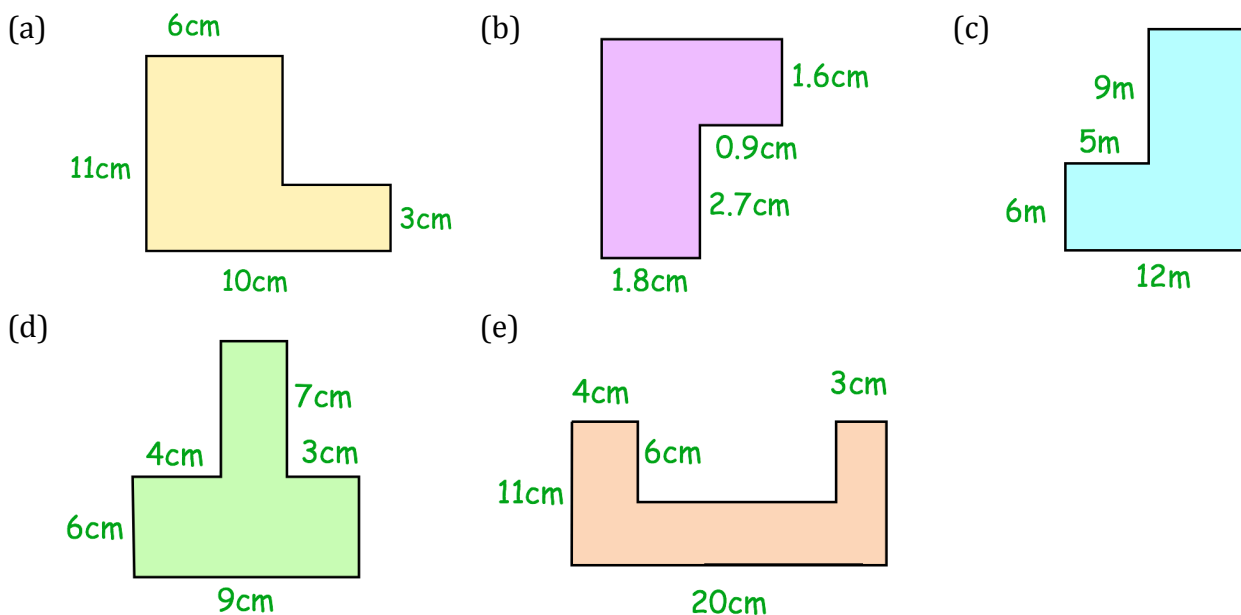
Corbett maths

Question 8:   The perimeter of each shape is given. Find the length of the missing side

(a)
8cm
x
Perimeter = 26cm

(b)
x
14cm
Perimeter = 80cm

(c)
x
Perimeter = 20cm

(d)
9cm
x
Perimeter = 25cm

(e)
Perimeter = 36cm

(f)
x
35cm
Perimeter = 79cm

(g)
x
9cm
Perimeter = 45cm

(h)
x
Perimeter = 2m

(i)
x
32cm
25cm
Perimeter = 163cm
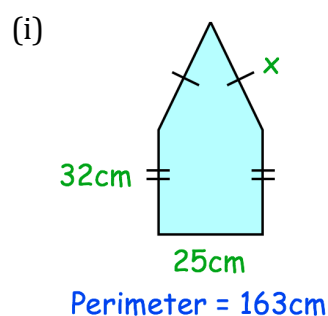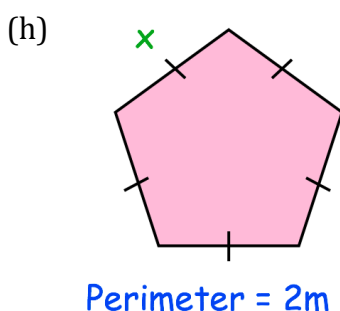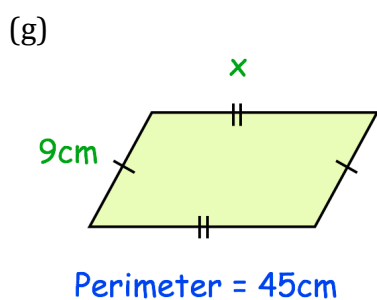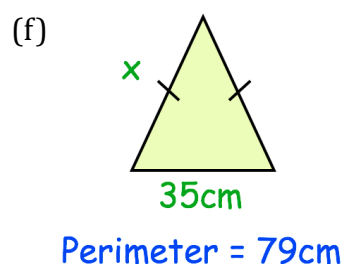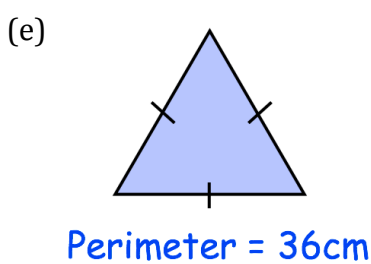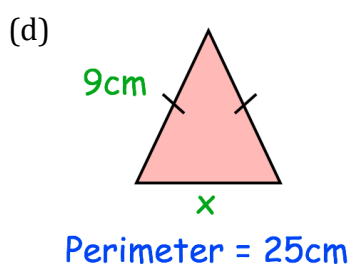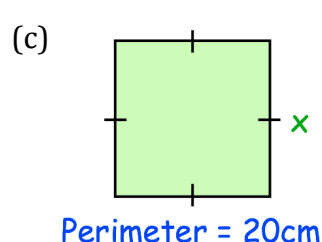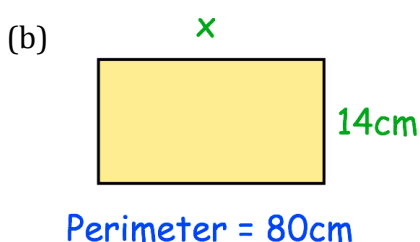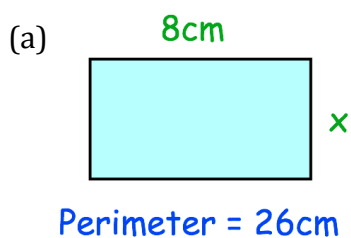
Apply

Question 1:   The square is drawn accurately
                    Find the perimeter of the square.
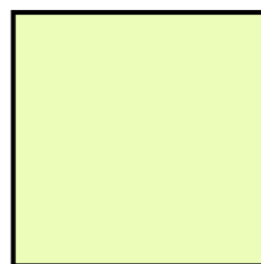
Question 2:   A rectangle has a perimeter of 18cm.
                    Write down a possible pair of values for its length and width

Question 3:   The triangle and square have the same perimeter.
                    Find x

12cm   20cm   x

16cm
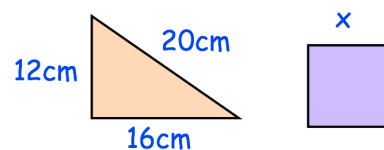
Question 4:   Shown is a rectangle.
                    Work out the perimeter of the rectangle.

8m
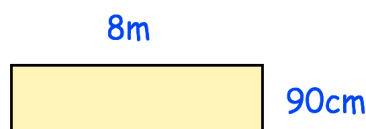
90cm

Question 5: The length of a rectangular field is 60m greater than the width of the field.
The field has a length of 310m.
Find the perimeter of the field.

Question 6: Felicity wants to place a wooden fence around her vegetable garden.
Each metre of fencing costs £5.80

Work out the cost of the new fence

4.5m

7m

6m

9.5m
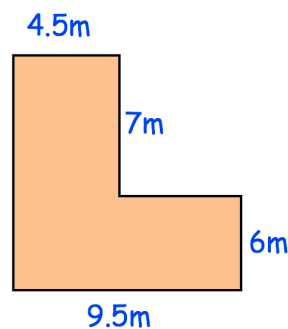
Question 7: Below is a coffee table.
The length of the table is 40cm more that the width of the table.
The perimeter of the table is 3.8m
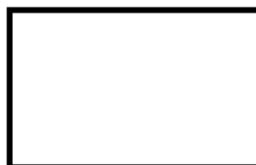
Find the size of the length and width of the table

Question 8: Shown is an equilateral triangle with side length of 8cm.
Six of the triangles are put together to make a larger shape.
Find the perimeter of the larger shape.

8cm
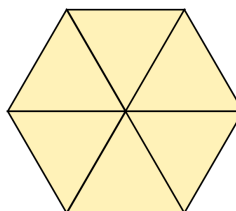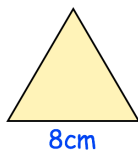
Question 9: A square has an area of 36cm^2
Find the perimeter of the square.

Question 10: Andy says that all rectangles with an area of 24cm^2 have the same perimeter
Show that Andy is wrong.

Corbett maths

Question 11: A rectangle is divided into two shapes, A and B

(a)   Which of these statements is true?

- The area of A is greater than the area of B
- The area of A is less than the area of B
- The area of A is the same as the area of B
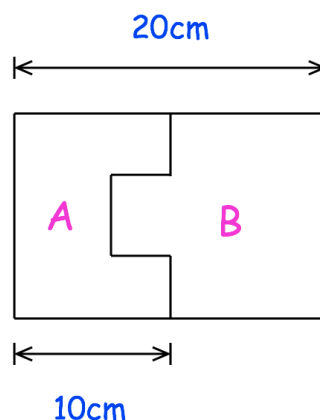
(b)   Which of these statements is true?

- The perimeter of A is greater than the perimeter of B
- The perimeter of A is less than the perimeter of B
- The perimeter of A is the same as the perimeter of B

20cm

A   B

10cm

Question 12: An isosceles triangle has a perimeter of 73cm
An equilateral triangle has a perimeter of 51cm
The triangles are put together to make a kite.
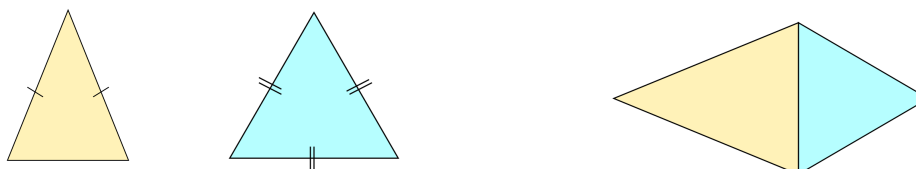
Work out the perimeter of the kite.

Question 13:   Three congruent rectangles, are placed together to make the shape below.

11cm

4cm
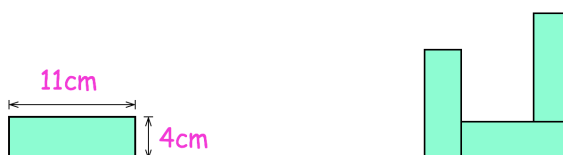
Find the perimeter of the shape.

Question 14: ABCD is a trapezium
AD is twice the length of AB
BC is 3cm longer than AD
DC is 19cm longer than AB
The perimeter of the trapezium is 49cm

A   B

D   C
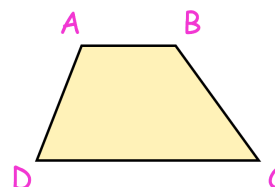
Find the length of AB

Answers

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Corbett maths

Examples

Workout

Click here

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Question 1:   The following shapes are drawn on centimetre-squared paper.
               Find the area of each shape.

(a)   (b)   (c)

(d)   (e)   (f)
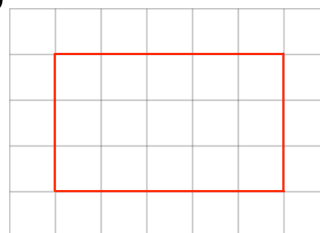
Question 2:   The following shapes are drawn on centimetre-squared paper.
               Find the area of each shape.
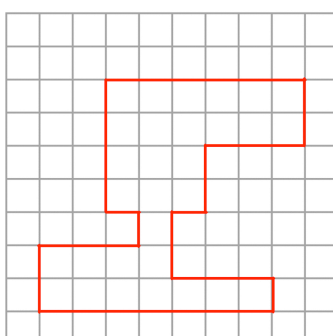
(a)   (b)   (c)
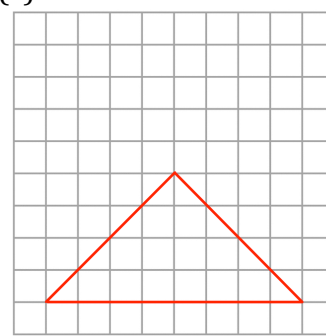
Question 3:   The following shapes are drawn on centimetre-squared paper.
               Estimate their areas.
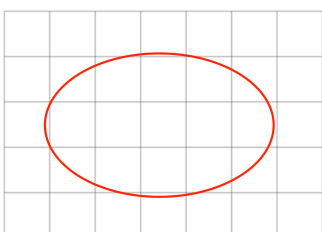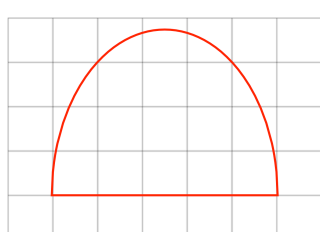
(a)   (b)   (c)
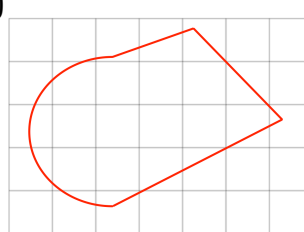
Apply

Question 1:   On centimetre-square paper, draw a rectangle with an area of 10cm^2

Question 2:   On centimetre-square paper, draw three different rectangles with an area of 12cm^2

Question 3:   A square has an area of 25cm^2.
(a) Draw this square on centimetre-square paper.
(b) Find the perimeter of the square.

Question 4:   A rectangle has an area of 30cm^2.
(a) Draw two possible rectangles on centimetre-square paper.
(b) Find the perimeter of both rectangles.

Question 5:   A square has a perimeter of 12cm
(a) Draw this square on centimetre-square paper.
(b) Find the area of the square.

Question 6:   Draw a shape that has one line of symmetry and an area of 8cm^2

Question 7:   Draw a shape that has two lines of symmetry and an area of 10cm^2

Question 8:   Jasmine says the area of this shape is 10cm.
Explain her mistake.

Answers

Click here   Scan here
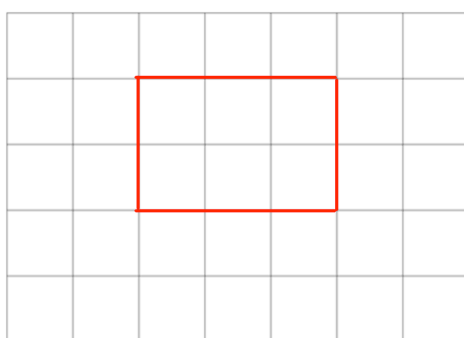
Area of a Rectangle
Video 45 on Corbettmaths
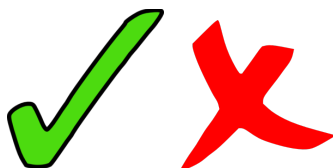
Examples
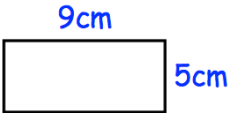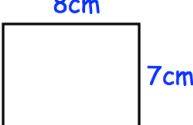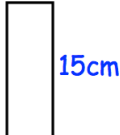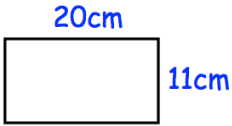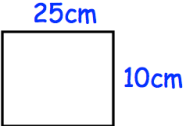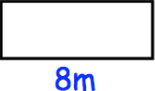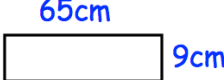
Workout

Click here
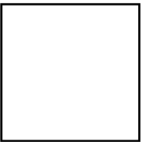
Scan here
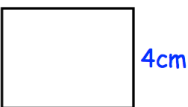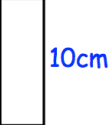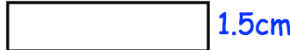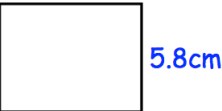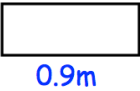
Question 1:   Calculate the area of each of these rectangles

(a)
9cm
5cm

(b)
8cm
7cm

(c)
12cm
2cm

(d)
3cm
15cm

(e)
20cm
11cm

(f)
25cm
10cm

(g)
14cm
4cm

(h)
50cm
20cm

(i)
3m
8m

(j)
12 miles
18 miles

(k)
5mm
33mm

(l)
65cm
9cm

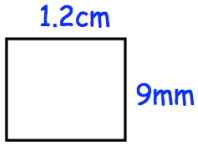**Question 2:**   Work out the area of each of these squares

(a)
7cm

(b)
20cm

(c)
9mm

(d)
14cm

Question 3:   Work out the area of each of these rectangles

(a)
5.5cm
4cm

(b)
2.7cm
10cm

(c)
6.2cm
4cm

(d)
12cm
1.5cm

(e)
5.7cm
9cm

(f)
6.7cm
5.8cm

(g)
0.3m
0.9m

(h)
0.6km
1.3km

Question 4: Work out the area of each of these rectangles.
State your units for each answer.

(a)

90cm

1m

(b)

2km

700m

(c)

3.5m

200cm

(d)

1.2cm

9mm

(e)

70cm

4m

(f)

0.8m

50cm

(g)

0.1m

9000mm

Question 5: The area of each of these rectangles have been given.
Find the length of the missing sides.

(a)

$24cm^2$ 3cm

?

(b)

$40cm^2$?

8cm

(c)

15mm

? $30mm^2$

(d)

$60cm^2$?

12cm

(e)

$90cm^2$ 1.5cm

?

(f)

7km

$56km^2$?

(g)

?

11cm $132cm^2$

(h)

25cm

? $400cm^2$

(i)

?

$9m^2$ 2m

(j)

?

$333cm^2$ 9cm

(k)

18cm

$126cm^2$?

(l)

?

35m $1400m^2$

Apply

Question 1: A farmer has a field that is 300m long and 70m wide.
Calculate the area of the field.

Question 2: A piece of paper has a length of 18cm and a width of 6cm.
Find the area of paper.

Question 3: A rectangle has an area of 30cm²
Write down the length and width of **three** rectangles with an area of 30cm²

Question 4: These two rectangles have the same area.
Find the length of the second rectangle.

8cm

5cm

x

2cm
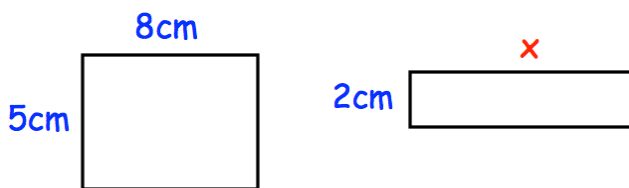
Question 5: A rectangle has an area of 80cm² and a perimeter of 48cm.
Find the length and width of the rectangle.

Question 6: A rectangle has an area of 100cm² and a perimeter of 104cm.
Find the length and width of the rectangle.

Question 7: Mr Jenkins has a grass lawn that is 24m wide and 30m long.
Mr Jenkins cuts the grass at a rate of 9m² per minute.
How long will it take Mr Jenkins to cut all the grass?

Question 8: A football pitch is 110m long and has a perimeter of 360m.
Find the area of the football pitch.

Question 9: A rectangular room is 14m long and 8m wide.
Jessica is going to carpet the room with carpet that costs £17.50 per square metre.
Work out the cost of carpeting the room.

Question 10: Mr Harris is tiling his bathroom floor.
The bathroom floor is a rectangle measuring 4m by 2m.
Each tile is 20cm by 20cm.

4m

20cm

2m
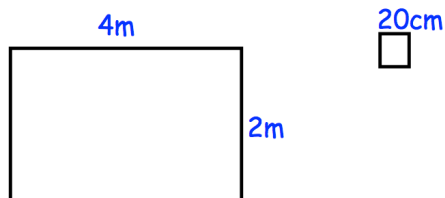
How many tiles does he need?

Question 11: Henry is tiling his kitchen wall.
The kitchen wall is a rectangle measuring 7m by 2m.
Each tile is 50cm by 50cm.

7m

50cm

2m
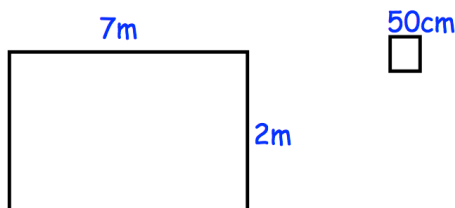
How many tiles does he need?

Question 12: Mrs Rodgers is tiling her bathroom wall.
The bathroom wall is 360cm long and 240cm high.
Each tile is 20cm by 20cm

360cm

20cm

240cm
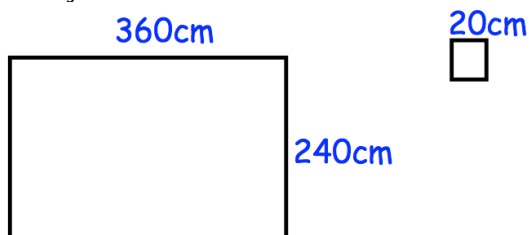
The tiles are sold in boxes of 6.
Each box costs £8.
How much will it cost Mrs Rodgers to tile her bathroom wall?

Answers

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Examples

Workout

Click here

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Question 1: Find the area of each triangle.

(a)
10cm
8cm
6cm

(b)
4cm
7cm

(c)
13cm
12cm
5cm

(d)
4cm
20cm

(e)
6cm
9cm

(f)
10cm
13cm
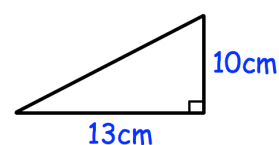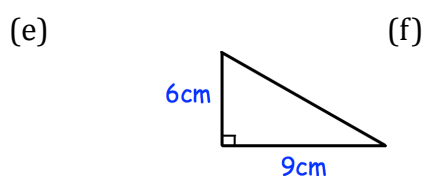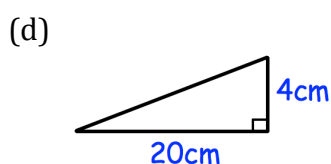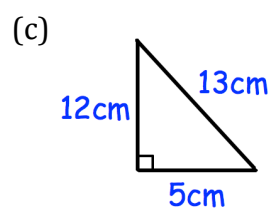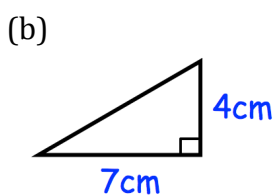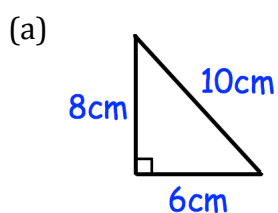
Question 2: Find the area of each triangle.

(a)
6cm
4cm

(b)
5cm
14cm

(c)
9cm
3cm

(d)
25cm
40cm

(e)
18m
20m

(f)
8cm
12cm
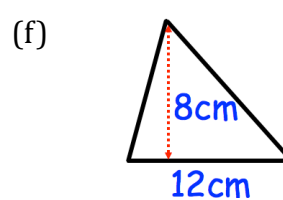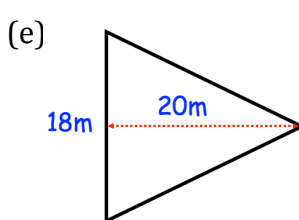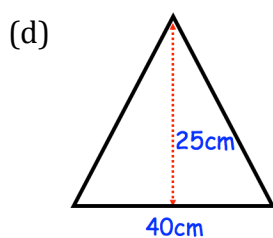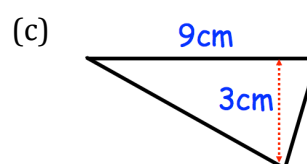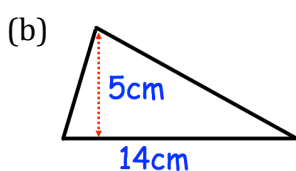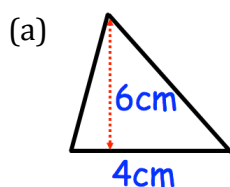
Question 3: Find the area of each triangle.

(a)
4cm
9cm

(b)
16cm
6cm

(c)
5cm
13cm

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(d)

9cm 13cm

6cm

(e)

44mm

42mm

(f)

27m

22m
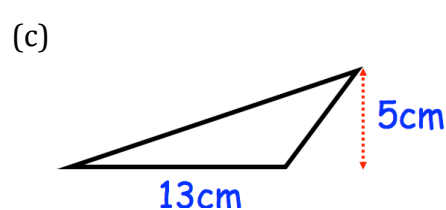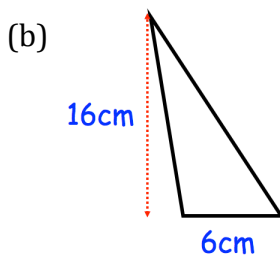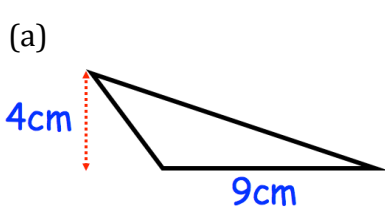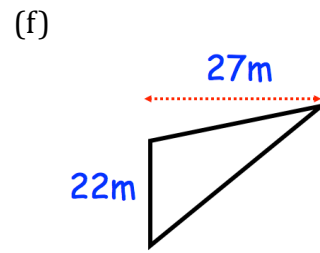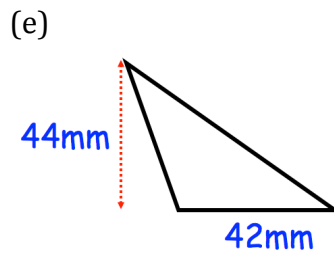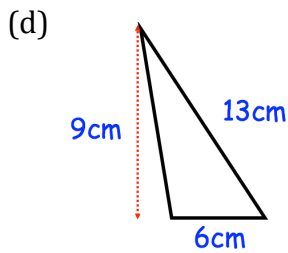
Question 4: Find the area of the triangle with a base of 12cm and perpendicular height of 9cm.

Question 5: Find the area of the triangle with a base of 9cm and perpendicular height of 14cm.

Question 6: Find the area of the triangle with a base of 19cm and perpendicular height of 7cm.

Question 7: The area of the triangle is $20cm^2$, find x.

x

5cm
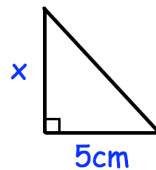
Question 8: The area of the triangle is $30cm^2$, find y.

6cm

y
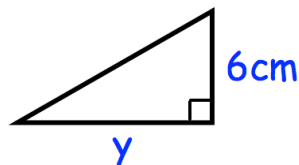
Question 9: The area of the triangle is $12cm^2$, find z.

z

6cm
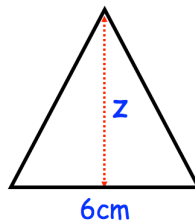
Question 10: The area of the triangle is $56cm^2$, find a.

8cm

a
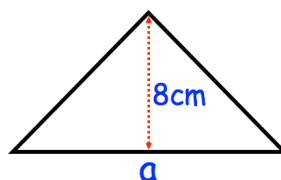
Question 11: The area of the triangle is 165cm², find b.

15cm

b
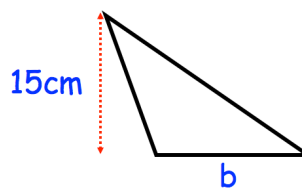
Apply

Question 1:   Shown is a square garden with a triangular pond.
                Find the area of the garden that is grass.

6m

3m

4m
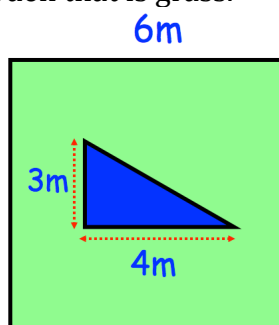
Question 2:   Shown is a triangular brick wall with a rectangular window.
                Find the area of the wall that is brick.

7m

2m

1.5m

6m
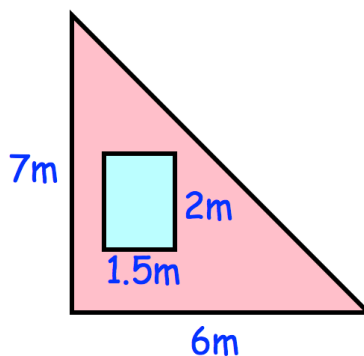
Question 3:   Shown is a pattern that is made from a rectangle and a triangle.
                Find the area of the pattern.

6cm

8cm

5cm
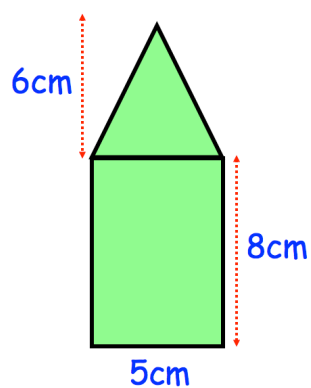
Question 4: Shown below is a triangular field.
Each chicken requires 3m².
How many chickens can be kept in this field?

14m

18m
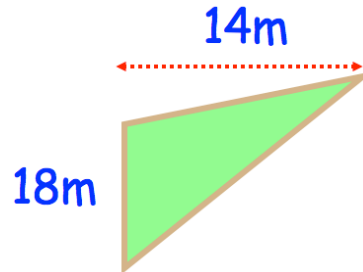
Question 5: Shown below is a wall.
Calculate the area of the wall.

4m

3m

3m
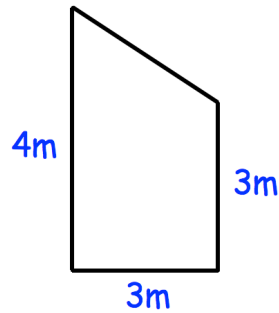
Question 6: Shown below is a logo made from a square and two triangles.
Calculate the area of the logo.

7cm

8cm

7cm

Answers

✔ ✗
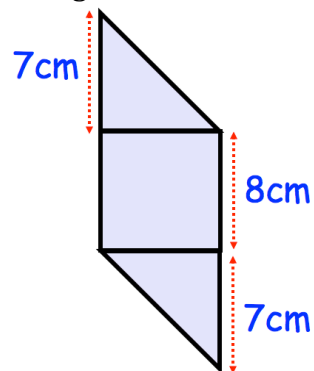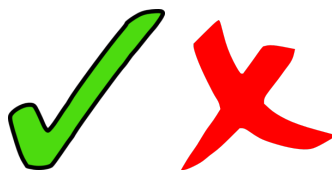
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St Andrew's Academy

Mathematics Department
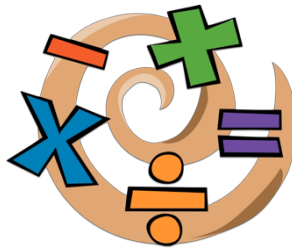
BLOCK *THREE*

Number	Algebra	Fractions 1
• Multiples. • Factors. • Prime Numbers. • Prime Decomposition. • Prime Decomposition with LCM and HCF.	• Equations with terms on both sides. • Multiplying algebraic terms. • Removing single brackets.	• Identifying fractions. • Equivalent fractions • Simplifying fractions. • Fractions of an amount. • Adding and Subtracting fractions with the same denominator.

Examples

Workout

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Question 1: Write down the first six multiples of these numbers

(a) 5   (b) 3   (c) 4   (d) 10   (e) 7   (f) 9

(g) 11   (h) 20   (i) 100   (j) 50   (k) 12   (l) 35

Question 2: Below is a list of numbers.

12   15   17   20   22   25   27   30   32   35   39   40

From the list write down any numbers that are multiples of:

(a) 2   (b) 5   (c) 10   (d) 3   (e) 4   (f) 8

Question 3: List all the numbers between 40 and 60 (inclusive) that are multiples of:

(a) 5   (b) 3   (c) 6   (d) 8   (e) 9   (f) 14

Question 4: Below is a list of numbers.

100   101   102   103   104   105   106   107   108   109

From the list write down any numbers that are multiples of:

(a) 2   (b) 3   (c) 5   (d) 10   (e) 4   (f) 15

Question 5: (a) List the first ten multiples of 3.
(b) List the first ten multiples of 4.
(c) Write down any numbers listed that are multiples of both 3 and 4.

Question 6: (a) List the first ten multiples of 5.
(b) List the first ten multiples of 6.
(c) Write down any numbers listed that are multiples of both 5 and 6.

Question 7: (a) List the first ten multiples of 6.
(b) List the first ten multiples of 9.
(c) Write down any numbers listed that are multiples of both 6 and 9.

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Question 8:   Write down three common multiples of 8 and 12.

Question 9:   Write down three common multiples of 4 and 6.

Question 10: Write down three common multiples of 15 and 20.

Apply

Question 1:   A light flashes every 8 seconds. How many times will it flash in 3 minutes?

Question 2:   Find the smallest number over 200 that is a multiple of 6.

Question 3:   Copy the Venn diagram below.
               Place these numbers into the Venn diagram: 8, 10, 12, 13, 20, 22, 25, 40, 50

Multiple of 4   Multiple of 5
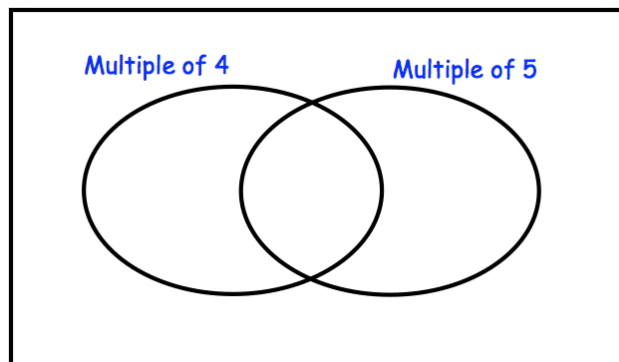
Question 4: Find the first even number that is a multiple of 5 and 7.

Question 5:   A crate can hold 12 cans of lemonade.
               Thomas has 200 cans of lemonade.
               How many crates can be filled?

Question 6:   Find a number that is a multiple of 2, 3, 4, 5 and 6.

Answers

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Examples

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Question 1: List all the factors of these numbers

(a) 8   (b) 10   (c) 7   (d) 12   (e) 20   (f) 22   (g) 18

(h) 50   (i) 15   (j) 19   (k) 30   (l) 100   (m) 32   (n) 24

(o) 42   (p) 28   (q) 66   (r) 70   (s) 45   (t) 60   (u) 25

Question 2: Is 3 a factor of.... ?

(a) 14   (b) 21   (c) 27   (d) 32   (e) 57   (f) 301   (g) 100

Question 3: Is 5 a factor of.... ?

(a) 20   (b) 34   (c) 40   (d) 38   (e) 45   (f) 102   (g) 135

Question 4: List all the factors of these numbers (you may use a calculator)

(a) 84   (b) 140   (c) 200   (d) 240   (e) 145   (f) 192   (g) 244

Question 5: Is 9 a factor of.... ?

(a) 38   (b) 90   (c) 72   (d) 108   (e) 909   (f) 9001   (g) 293

Apply

Question 1: 21   25   30   45
Which number is the odd one out? why?

Question 2: 15   24   28   33
Which number is the odd one out? why?

Question 3: Mary has 26 sweets and is able to share them evenly between her friends.
Mary has more than 1 friend.
Write down how many friends Mary might have.

Question 4: James says that all numbers have an even number of factors.
Is he correct?

Answers

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Examples

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Question 1: List the first ten prime numbers

Question 2: Are the numbers below, **prime** or **not prime**?

(a) 5   (b) 9   (c) 10   (d) 11   (e) 13   (f) 15

(g) 19   (h) 21   (i) 22   (j) 30   (k) 31   (l) 44

(m) 49   (n) 29   (o) 35   (p) 1   (q) 39   (r) 27

Question 3: From the box, choose:

(a) the smallest prime number
(b) a prime number that is greater than 10
(c) an even prime number
(d) the largest prime number
(e) three numbers that are not prime

```
7          19        2
      17        81
9
    1     27        99
101               55
      100
```

Apply

All prime numbers are odd

Question 1: Explain why Evie is wrong.

Question 2: Use divisibility tests to see if any of these numbers are prime.

(a) 90   (b) 96   (c) 85   (d) 63   (e) 79   (f) 77

Question 3: Find three different prime numbers that have a sum of 40.

Question 4: Find three different prime numbers that have a product of 165

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Question 5:   Goldbach's conjecture states

"every even number greater than 2 can be written as the sum of two primes."

Test this conjecture for all the even numbers up to 50.

Answers

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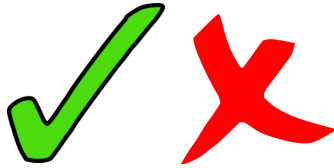
Examples

Workout

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Question 1: Write each of these numbers as the product of their prime factors.

(a) 10   (b) 12   (c) 20   (d) 18   (e) 16   (f) 30   (g) 100

(h) 26   (i) 24   (j) 27   (k) 42   (l) 33   (m) 38   (n) 64

Question 2: Write each of these numbers as the product of their prime factors.
Give your answers in index form.

(a) 36   (b) 40   (c) 28   (d) 48   (e) 80   (f) 200   (g) 75

(h) 32   (i) 105   (j) 81   (k) 52   (l) 242   (m) 108   (n) 500

Question 3: Some numbers have been written as products of their prime factors.
Work out each number.

(a) 2×7 (b) $2 \times 3 \times 5$ (c) $2 \times 5 \times 11$ (d) $2 \times 2 \times 2 \times 3$

(e) $2^2 \times 5$ (f) 3×5^2 (g) $2^3 \times 3^2$ (h) $3^2 \times 11$

(i) 5^4 (j) $2^4 \times 5^2$ (k) $3^3 \times 13$ (l) 7×17^2

Question 4: Write each of these numbers as the product of their prime factors.

(a) 9000   (b) 235   (c) 392   (d) 715   (e) 444   (f) 792   (g) 5625

Apply

Question 1: Using the fact that $12 = 2^2 \times 3$, write each of the following as the product of
prime factors in index form.

(a) 24   (b) 36   (c) 60   (d) 48   (e) 120   (f) 84

Question 2: Using the fact that $300 = 2^2 \times 3 \times 5^2$, write each of the following as the product of prime factors in index form.

(a) 600 (b) 150 (c) 900 (d) 3300 (e) 1500 (f) 2400

Question 3: Ashley has completed his homework.
Can you spot any mistakes?

Express 36 as a product of its prime factors.

```
        36
       /  \
      6    6
     / \  / \
    3  3  3  3
```

36 = 3 x 3 x 3 x 3
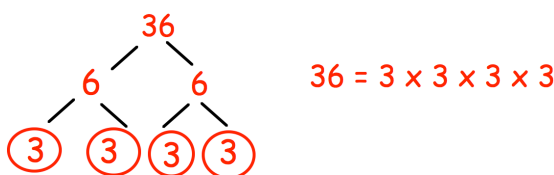
Write 24 as the product of its prime factors.
Give your answer in index form.

```
    24
   /  \
  3    8
      / \
     2   4
        / \
       2   2
```

24 = 2 x 2 x 2 x 3
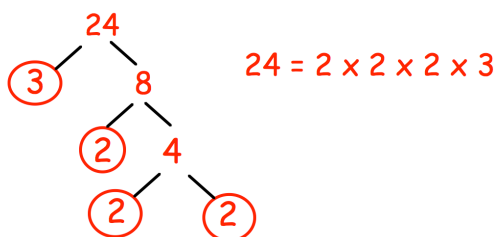
Question 4: (a) Write 980 as a product of prime factors.
Express your answer in index form.

(b) Find the lowest number by which 980 would need to be multiplied by to give a square number.

Question 5: (a) Write 480 as a product of prime factors.
Express your answer in index form.

(b) Find the lowest number by which 480 would need to be multiplied by to give a square number.

Question 6: (a) Write 2646 as a product of prime factors.
Express your answer in index form.

(b) Find the lowest number by which 2646 would need to be multiplied by to give a cube number.

Answers

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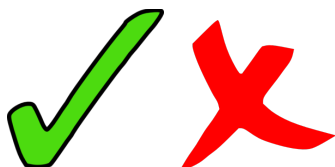
Examples

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Workout

Question 1:   Find the lowest common multiple (LCM) of each pair of numbers.

(a) 15 and 35   (b) 14 and 22   (c) 15 and 21   (d) 9 and 33

(e) 12 and 15   (f) 18 and 30   (g) 16 and 20   (h) 24 and 30

(i) 16 and 36   (j) 26 and 39   (k) 25 and 30   (l) 16 and 18

(m) 24 and 56   (n) 36 and 45   (o) 60 and 72   (p) 42 and 90

Question 2:   Find the highest common factor (HCF) of each pair of numbers

(a) 21 and 49   (b) 35 and 45   (c) 18 and 24   (d) 18 and 45

(e) 30 and 75   (f) 28 and 42   (g) 60 and 90   (h) 48 and 64

(i) 56 and 72   (j) 18 and 23   (k) 84 and 96   (l) 38 and 95

(m) 66 and 121   (n) 56 and 140   (o) 180 and 225   (p) 64 and 224

Apply

Question 1:   Given $60 = 2^2 \times 3 \times 5$ and $84 = 2^2 \times 3 \times 7$

Find (a) the lowest common multiple (LCM)

and (b) the highest common factor (HCF)

Question 2:   Find the lowest common multiple (LCM) of 15, 20 and 25.

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Question 3:   A red light flashes every 28 seconds.
A green light flashes every 24 seconds.
They both flash at the same time.
After how many seconds will they next both flash at the same time?

Question 4:   A bus heading to Belfast leaves Antrim every 36 minutes.
A bus heading to Ballymena leaves Antrim every 45 minutes
At 10am bus to Belfast and a bus to Ballymena both leave Antrim Bus Station.
Work out the next time that both buses leave at the same time.

Question 5:   Find the lowest common multiple of 124 and 200.

Question 6:   The LCM of two numbers is 130.
The HCF of the same two numbers is 13.
Both numbers are less than 100.
Write down two possible numbers.

Question 7:   Fred says that 20 and 21 have got a highest common factor of 0.
Explain why Fred is wrong.

Question 8:   Abby and Annie have the same number of coins.
Abby has sorted her coins into groups of 80.
Annie has sorted her coins into groups of 75.
They each have less than 2000 coins.
How many coins do they altogether?

Question 9:   Adam is working out the highest common factor of 100 and 112.
He has worked it out to be 22.
Can you explain what he has done wrong?

Answers
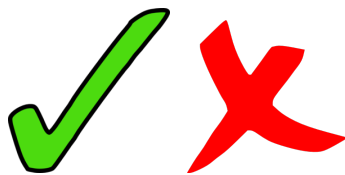
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Equations: Letters on Both Sides
Video 113 on www.corbettmaths.com

Examples

Workout

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Question 1:   Solve the following equations

(a) $4x + 1 = 2x + 7$

(b) $5x + 4 = 3x + 16$

(c) $2x + 8 = x + 12$

(d) $7x + 1 = 2x + 46$

(e) $6x - 3 = 2x + 13$

(f) $9x - 10 = 7x + 24$

(g) $2x + 21 = 4x + 5$

(h) $x + 2 = 5x - 2$

(i) $6x - 9 = 4x - 1$

(j) $5x + 2 = 16 - 2x$

(k) $3x - 1 = 23 - x$

(l) $6x + 8 = 38 - 4x$

(m) $80 - x = 8x - 1$

(n) $2x + 7 = 17 - 8x$

(o) $15 - x = 27 - 3x$

(p) $12x - 20 = 15x - 38$

(q) $35x + 10 = 20x + 175$

(r) $14x = 2x + 60$

Question 2:   Solve the following equations

(a) $3x + 3 = x + 8$

(b) $9x + 10 = 7x + 39$

(c) $3x + 1 = 7x - 17$

(d) $x + 4 = 13 - x$

(e) $16x + 3 = 6x + 24$

(f) $9x + 12 = 6x + 14$

(g) $7x + 24 = 12x - 12$

(h) $2x + 9 = 48 - 6x$

(i) $34 - 12x = 28x - 36$

Question 3:   Solve the following equations

(a) $4x + 15 = x + 3$

(b) $8x + 40 = 3x + 5$

(c) $9x + 7 = 11x + 20$

(d) $7x + 9 = 2x - 16$

(e) $9x - 70 = 2x - 91$

(f) $4 - 5x = 3x + 28$

(g) $10x + 136 = -8 - 2x$

(h) $-6x + 2 = -4x + 10$

(i) $-11x - 4 = -3x + 60$

Question 4:   Solve the following equations

(a) $5(x + 3) = 3(x + 9)$ (b) $8(x - 1) = 4(x + 3)$ (c) $3(x + 13) = 10(x - 1)$

(d) $2(4x - 3) = 5(2x - 5)$ (e) $9(2x - 5) = 3(4x + 7)$ (f) $2(9 - x) = 3(x + 16)$

(g) $5(2x + 9) + 2(x + 11) = 3(3x + 4) + 46$

(h) $8(x - 2) - 3(1 - x) = 9(x + 2) + 1$

Apply

Question 1:   Shown is a rectangle

(a) Explain why 9x + 12 = 4x + 47

(b) Find x

9x + 12

4x + 47
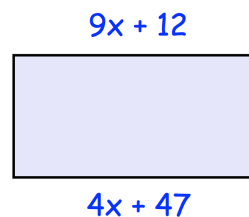
Question 2:   Shown is an isosceles triangle

(a) Explain why 4x + 15 = 33 – 2x

(b) Find x

(c) Find the perimeter of the isosceles triangle

4x + 15   33 - 2x

5x
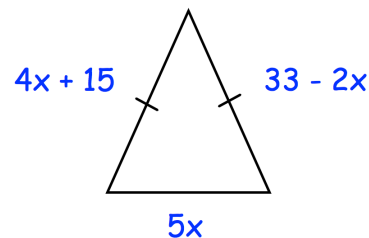
Question 3:   Explain why 8x + 3 = 2(4x + 1) has no solution.

Question 4:   (a) Find the value of x

(b) Find the value of y

4
x
x
x
x

31
x

y
1
x
x
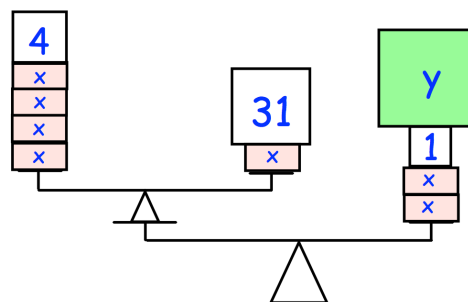
* The mass of the balances are very small, so may be ignored

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Question 5: Shown below is a function machine.
The input and output have the same value.

input   output

x →   Multiply by 8   →   Add 42   →
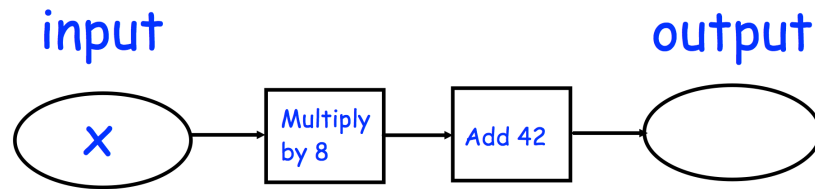
(a) Write an equation in terms of x.

(b) Solve the equation to find the value of x.

Question 6: Toby has completed his homework.
Can you spot any mistakes?

(a)

Solve $7x - 5 = 5x + 23$

-5x   -5x

$2x - 5 = 23$

-5   -5

$2x = 18$

÷2   ÷2

$x = 9$

(b)

Solve $3x + 11 = 41 - 2x$

-2x   -2x

$x + 11 = 41$

-11   -11

$x = 30$

Answers

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Examples

Workout

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Question 1: Simplify the following expressions.

(a) 3 × y

(b) w × 3

(c) 7 × x

(d) a × 4

(e) a × c

(f) f × g

(g) h × d

(h) a × y × m

(i) t × t

(j) p × p

(k) a × a × a

(l) m × m × m

(m) 4 × f × g

(n) 3 × w × y

(o) p × 5 × s

(p) n × c × 7

(q) t × c × w

(r) y × x × w

(s) 5 × a × a

(t) y × 3 × y

Question 2: Simplify the following expressions.

(a) 5 × 3w

(b) 4y × 2

(c) 3 × 3m

(d) 10g × 3

(e) 4 × 2 × y

(f) 3 × 2 × 2p

(g) 5 × 2y × 3

(h) 9a × 2 × 2

(i) 3a × c

(j) 4y × z

(k) 5c × b

(l) c × 6y

(m) 2a × 3y

(n) 6c × 3t

(o) 9w × 3a

(p) 2y × 2g

(q) 2y × y

(r) 5w × w

(s) m × 3m

(t) x × 2x

(u) 4t × 2t

(v) 6y × 3y

(w) 9a × 9a

(x) 12y × 10y

(y) 2a × 3p × 5w

(z) 10y × 2p × 3c × m

Question 3: Simplify the following expressions

(a) $a^2 × a$

(b) $y × y^2$

(c) $w^2 × w^2$

(d) $m^2 × m^3$

(e) $2t^2 × t$

(f) $4m × m^2$

(g) $g × 2g^2$

(h) $p^2 × 3p^2$

(i) $3p^2 × 2p$

(j) $2v^2 × 7v^2$

(k) $9p^2 × 7p^2$

(l) $5w^2 × 2w^3$

(m) $7a^3 × 4a^3$

(n) $6c^4 × 5c^3$

(o) aw × w

(p) r × ry

(q) ay × ay   (r) $c^2f × f$ (s) $dg × d^2$ (t) $3x^2y × 2x$

(u) 4ab × 2ab   (v) $3m^2n^2 × 4mn$ (w) $2cd^2 × d^2$ (x) $4a^2bc^2 × a^3b$

(y) $2ad^2e × a^3c$ (z) $8m^2n × 3no^5$

Apply

Question 1:   Find an expression for the area of this rectangle

8a

3c
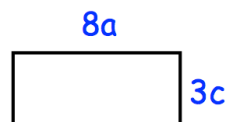
Question 2:   Find an expression for the area of this rectangle

9w

2w
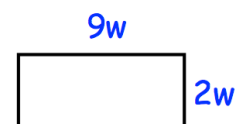
Question 3:   Find an expression for the area of this triangle

2p

6m
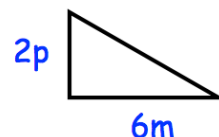
Question 4:   The area of the rectangle and square are equal.
Find the side length of the square.

Not drawn to scale

50y

8y

?
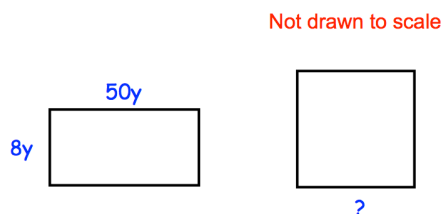
Question 5:   Find an expression for the area of this shape

3x

7y

3y

7x

Answers

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Expanding Brackets
Video 13 on www.corbettmaths.com
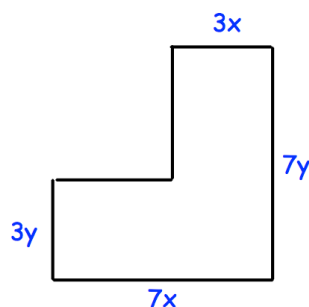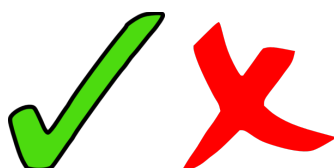
Examples

Workout

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Question 1: Expand the following brackets

(a) 5(y + 3)   (b) 4(a + 2)   (c) 8(w + 10)   (d) 3(x – 7)

(e) 9(s – 1)   (f) 2(8 – t)   (g) 7(4 + h)   (h) 10(a + 2b + 3c)

(i) 4(3y + 2)   (j) 5(2p – 1)   (k) 3(7a + 2)   (l) 9(2x – 5)

(m) 5(4 + 3t)   (n) 7(9 – 2c)   (o) 8(3w + 1)   (p) 9(1 – 4p)

(q) 11(2k – 5)   (r) 20(6a + 5c)   (s) 3(15w – 7)   (t) 3(9 – 2a)

Question 2: Expand the following brackets

(a) −2(w + 5)   (b) −3(c + 7)   (c) −8(c + 7)   (d) −10(y – 2)

(e) −7(g – 3)   (f) −4(2w + 3)   (g) −9(3w – 5)   (h) −9(5x – 1)

(i) −5(6 – c)   (j) −6(4 + 3m)   (k) −2(1 + 9c)   (l) −5(8a – 7w)

Question 3: Expand the following brackets

(a) a(c + 2)   (b) c(d – 3)   (c) a(b + c)   (d) w(8 – y)

(e) c(5 + a)   (f) w(a – 9)   (g) y(s + t)   (h) 2a(c – 3)

(i) 5x(y + 8)   (j) 3a(2c + 9)   (k) 6g(2c – 1)   (l) 9k(2 + d)

(m) 5(2f + 9w)   (n) 3y(5p + 2)   (o) 2s(t + 1)   (p) −4a(8x – 3)

Question 4: Expand the following brackets

(a) a(a + 2)   (b) y(y – 5)   (c) w(a + w)   (d) c(9 – c)

(e) p(2p + 5)   (f) 2w(3w – 1)   (g) 9y(2y + 3)   (h) 4c(2a + 5c)

(i) $2u(3 - u)$ (j) $m(m^2 + 3)$ (k) $y(y^2 - 7)$ (l) $g^2(g - 8)$

(m) $2w(w^2 + 6)$ (n) $4a(2a^2 - 3)$ (o) $5c(3c^2 - a)$ (p) $8w(3w^2 + 3y)$

(q) $x^2(x^2 + 4)$ (r) $3w^2(7 + 2w^2)$

Question 5:   Expand and simplify

(a) $5(y + 3) + 2(y + 7)$ (b) $6(2w + 5) + 9(w + 2)$ (c) $3(y - 2) + 4(2y + 5)$

(d) $7(2g + 3) - 5(g+ 2)$ (e) $6(x - 2) - 4(x - 8)$ (f) $2(3y - 8) - 5(2y - 1)$

(g) $8(5 + 2m) + 3(5 - 3m)$ (h) $4(w + 7) - 2(2w + 1)$ (i) $9(1 + 2y) + 3(3 - y)$

Question 6:   Expand and simplify

(a) $w(w + 5) + w(w + 7)$ (b) $2g(4g + 3) + g(g - 7)$ (c) $n(n - 4) - n(5 - n)$

(d) $2e(4e + 3) - 3e(e - 5)$ (e) $a(3 + c) + c(a + 2)$ (f) $m(a + 7) - a(4 - 3m)$

(g) $8c(8 - 3a) + 3(4 - c)$ (h) $5y(3y + z) - 2y(4y - 3z)$ (i) $4c(3c - c^2) - 2c^2(4 - 5c)$

Apply

Question 1: Can you spot any mistakes in the questions below.

Expand $3(2y - 1)$ Multiply out $x(x + 3)$

6y - 1   2x + 3x = 5x

Expand and simplify $6(w + 3) - 2(w - 5)$

6w + 18 - 2w - 10

= 4w + 8

Answers

✓ ✗

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Fractions of Shapes

Video 143 on www.corbettmaths.com

Workout

Question 1:   Shade in each shape by the fraction given.

(a)
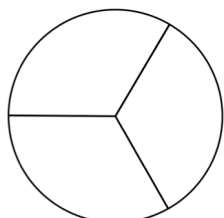
Shade in $\dfrac{1}{3}$

(b)
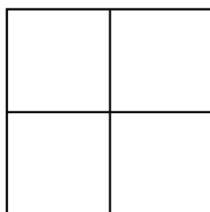
Shade in $\dfrac{1}{4}$

(c)
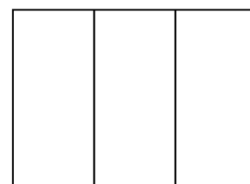
Shade in $\dfrac{2}{3}$

(d)
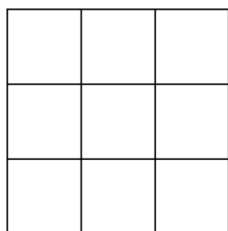
Shade in $\dfrac{5}{9}$

(e)
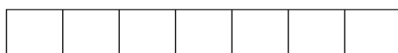
Shade in $\dfrac{2}{7}$

(f)
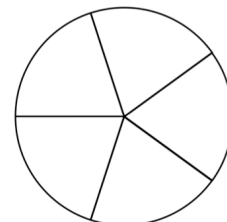
Shade in $\dfrac{4}{5}$

Question 2:   Shade in each shape by the fraction given.

(a)
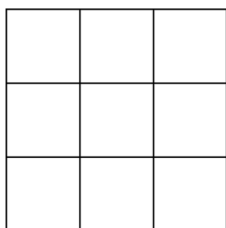
Shade in $\dfrac{2}{3}$

(b)
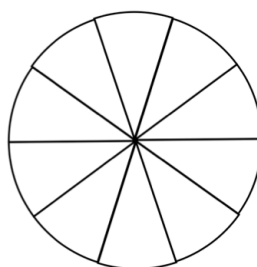
Shade in $\dfrac{1}{5}$

(c)
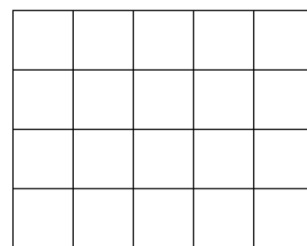
Shade in $\dfrac{3}{4}$

(d)
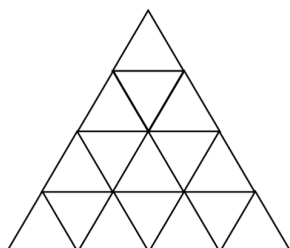
Shade in $\dfrac{1}{4}$

(e)

Shade in $\dfrac{2}{3}$

(f)

Shade in $\dfrac{3}{5}$

Question 3:   Write down the fraction of each shape that is shaded.

(a)
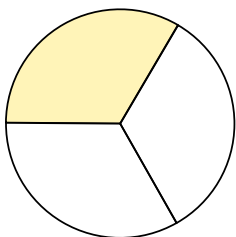
(b)
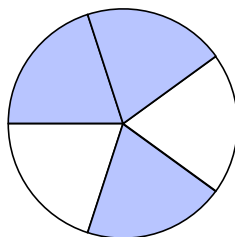
(c)
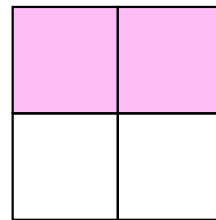
(d)
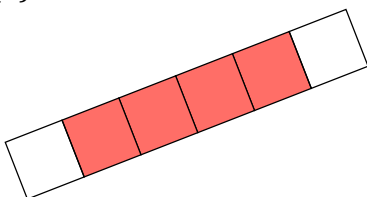
(e)
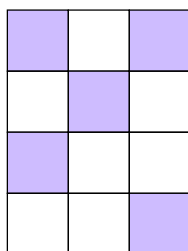
(f)
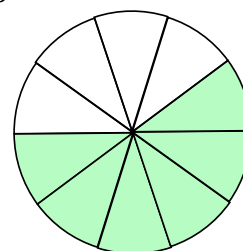
(g)
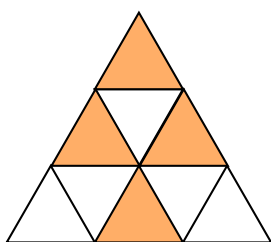
(h)
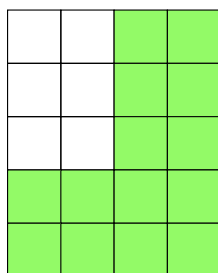
(i)
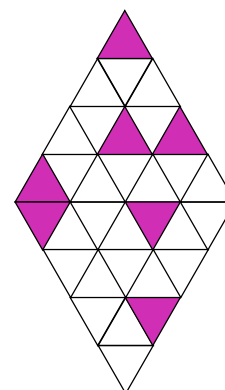
Apply

Question 1:   Which shape is the odd one out?
Explain your answer.
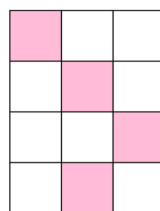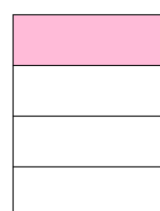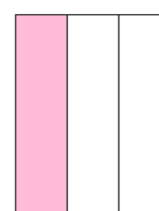
Shape A   Shape B   Shape C

Question 2:   Jamie is trying to shade $\frac{1}{3}$ of the grid.

Each square he decides to shade, he must shade in fully.

Can he successfully shade in $\frac{1}{3}$ of the grid?

Explain your answer.

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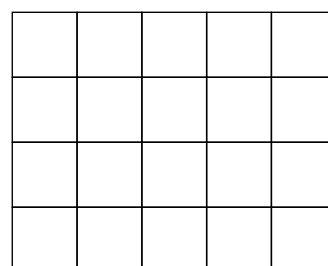
Workout

Question 1:   Find the missing numbers

(a) $\dfrac{2}{3} = \dfrac{}{6}$

(b) $\dfrac{1}{5} = \dfrac{}{20}$

(c) $\dfrac{3}{4} = \dfrac{}{12}$

(d) $\dfrac{5}{7} = \dfrac{10}{}$

(e) $\dfrac{}{5} = \dfrac{15}{25}$

(f) $\dfrac{4}{} = \dfrac{12}{21}$

(g) $\dfrac{3}{10} = \dfrac{}{50}$

(h) $\dfrac{7}{8} = \dfrac{14}{}$

(i) $\dfrac{3}{4} = \dfrac{30}{}$

(j) $\dfrac{}{8} = \dfrac{55}{88}$

(k) $\dfrac{2}{9} = \dfrac{10}{}$

(l) $\dfrac{2}{3} = \dfrac{}{18}$

(m) $\dfrac{1}{20} = \dfrac{5}{}$

(n) $\dfrac{5}{6} = \dfrac{}{18}$

(o) $\dfrac{3}{8} = \dfrac{9}{}$

(p) $\dfrac{7}{12} = \dfrac{}{36}$

Question 2:   Find the missing numbers

(a) $\dfrac{6}{7} = \dfrac{42}{}$

(b) $\dfrac{9}{20} = \dfrac{63}{}$

(c) $\dfrac{5}{12} = \dfrac{35}{}$

(d) $\dfrac{7}{8} = \dfrac{}{64}$

(e) $\dfrac{4}{} = \dfrac{32}{72}$

(f) $\dfrac{3}{4} = \dfrac{}{52}$

(g) $\dfrac{7}{25} = \dfrac{140}{}$

(h) $\dfrac{}{15} = \dfrac{42}{105}$

(i) $\dfrac{11}{16} = \dfrac{88}{}$

(j) $\dfrac{2}{9} = \dfrac{}{108}$

(k) $\dfrac{13}{25} = \dfrac{}{375}$

(l) $\dfrac{9}{} = \dfrac{81}{144}$

Apply

Question 1:   Write down 3 different fractions that are equivalent to $\dfrac{1}{2}$

Question 2:   Write down 3 different fractions that are equivalent to $\dfrac{3}{5}$

Question 3:   Write down 3 different fractions that are equivalent to $\dfrac{7}{12}$

Question 4: Dave and Tom are discussing fractions.
Is either man correct?

$\frac{4}{5}$ is equivalent to $\frac{16}{20}$

$\frac{4}{5}$ is equivalent to $\frac{20}{24}$

Dave

Tom
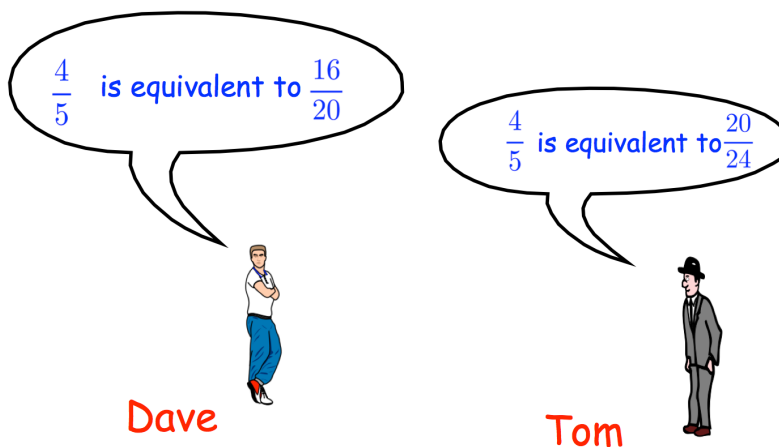
Question 5: Use the grid to explain why $\dfrac{3}{4}$ cannot be written as a fraction with a denominator of 15.
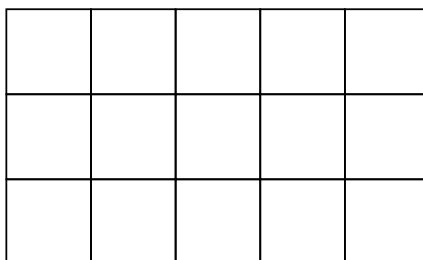
Question 6: Macey has completed her maths homework.
Can you explain what she has done wrong?

(a) $\dfrac{3}{4} = \dfrac{\boxed{4}}{16}$

(c) $\dfrac{7}{8} = \dfrac{35}{\boxed{5}}$

(b) $\dfrac{\boxed{3}}{5} = \dfrac{6}{15}$

(d) $\dfrac{2}{\boxed{8}} = \dfrac{16}{40}$

Examples

Workout

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Question 1: Simplify fully

(a) $\dfrac{2}{4}$ (b) $\dfrac{6}{9}$ (c) $\dfrac{6}{8}$ (d) $\dfrac{5}{15}$ (e) $\dfrac{4}{6}$ (f) $\dfrac{9}{12}$

(g) $\dfrac{10}{15}$ (h) $\dfrac{9}{15}$ (i) $\dfrac{8}{12}$ (j) $\dfrac{10}{14}$ (k) $\dfrac{15}{35}$ (l) $\dfrac{6}{21}$

(m) $\dfrac{18}{22}$ (n) $\dfrac{16}{20}$ (o) $\dfrac{9}{24}$ (p) $\dfrac{20}{30}$ (q) $\dfrac{8}{28}$ (r) $\dfrac{300}{500}$

Question 2: Cancel down each fraction to its simplest form

(a) $\dfrac{14}{35}$ (b) $\dfrac{8}{64}$ (c) $\dfrac{18}{24}$ (d) $\dfrac{75}{100}$ (e) $\dfrac{24}{80}$ (f) $\dfrac{6}{42}$

(g) $\dfrac{36}{66}$ (h) $\dfrac{18}{45}$ (i) $\dfrac{70}{120}$ (j) $\dfrac{49}{56}$ (k) $\dfrac{22}{110}$ (l) $\dfrac{18}{72}$

(m) $\dfrac{60}{140}$ (n) $\dfrac{45}{135}$ (o) $\dfrac{40}{360}$ (p) $\dfrac{64}{100}$ (q) $\dfrac{85}{35}$ (r) $\dfrac{48}{36}$

Question 3: Simplify fully

(a) $\dfrac{145}{225}$ (b) $\dfrac{190}{570}$ (c) $\dfrac{200}{288}$ (d) $\dfrac{230}{495}$ (e) $\dfrac{54}{333}$ (f) $\dfrac{96}{123}$

Corbett maths

Apply

Question 1:   Which fractions below are equivalent to $\dfrac{2}{3}$?

$$\dfrac{4}{6} \qquad \dfrac{6}{8} \qquad \dfrac{8}{12} \qquad \dfrac{9}{12} \qquad \dfrac{10}{15}$$

Question 2:   James says that $\dfrac{1}{3}$ of the grid is shaded

Cara says $\dfrac{4}{12}$ of the grid is shaded.

Explain how they are both correct.
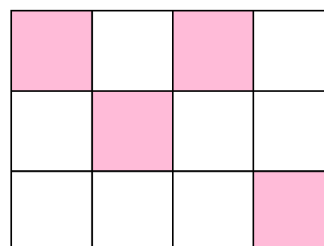
Question 3:   Given that $5 \times 13 = 65$ and $7 \times 13 = 91$ simplify fully $\dfrac{65}{91}$

Question 4:   Freddy has 40 cupcakes.
20 of the cupcakes are chocolate.
10 of the cupcakes are lemon.
8 of the cupcakes are strawberry.
The rest of the cupcakes of vanilla.

(a) What fraction of the cupcakes are chocolate?
Give the fraction in its simplest form.

(b) What fraction of the cupcakes are lemon?
Give the fraction in its simplest form.

(c) What fraction of the cupcakes are strawberry?
Give the fraction in its simplest form.

Answers

(d) What fraction of the cupcakes are vanilla?
Give the fraction in its simplest form.

Question 5:   There are 200 students in a primary school.
80 students wear glasses.
What fraction of the students wear glasses?
Give the fraction in its simplest form.

Click here

Question 6:   Sarah has £240 and she gives her mum £80.
What fraction of the money does Sarah have left?
Give the fraction in its simplest form.

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Examples

Workout

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Question 1: Work out each of the following

(a) $\frac{1}{2}$ of 10

(b) $\frac{1}{3}$ of 18

(c) $\frac{1}{5}$ of 20

(d) $\frac{1}{4}$ of 24

(e) $\frac{1}{9}$ of 27

(f) $\frac{1}{10}$ of 160

(g) $\frac{1}{8}$ of 80

(h) $\frac{1}{7}$ of 49

(i) $\frac{1}{2}$ of 9

(j) $\frac{1}{5}$ of 65

(k) $\frac{1}{12}$ of 72

(l) $\frac{1}{11}$ of 132

Question 2: Work out each of the following

(a) $\frac{2}{3}$ of 15

(b) $\frac{7}{10}$ of 20

(c) $\frac{2}{5}$ of 30

(d) $\frac{3}{4}$ of 32

(e) $\frac{3}{5}$ of 45

(f) $\frac{2}{7}$ of 28

(g) $\frac{3}{8}$ of 88

(h) $\frac{3}{10}$ of 120

(i) $\frac{5}{9}$ of 63

(j) $\frac{13}{20}$ of 60

(k) $\frac{2}{7}$ of 91

(l) $\frac{4}{15}$ of 120

Question 3: Work out each of the following.
Include suitable units.

(a) $\frac{1}{3}$ of £21

(b) $\frac{3}{4}$ of 100kg

(c) $\frac{2}{3}$ of 27cm

(d) $\frac{7}{8}$ of 32 seconds

(e) $\frac{2}{5}$ of 90 miles

(f) $\frac{5}{6}$ of £150

(g) $\frac{5}{12}$ of 240ml

(h) $\frac{9}{10}$ of 310 students

(i) $\frac{1}{8}$ of a day

(j) $\frac{4}{5}$ of 1km

(k) $\frac{3}{7}$ of 2 weeks

(l) $\frac{1}{500}$ of 1m

Question 4: Work out each of the following.

(a) $\dfrac{3}{10}$ of 32 miles (b) $\dfrac{2}{5}$ of 9kg (c) $\dfrac{1}{3}$ of 8 litres (d) $\dfrac{3}{5}$ of £7

(e) $\dfrac{1}{8}$ of 50cm (f) $\dfrac{1}{5}$ of 4931km (g) $\dfrac{3}{4}$ of £57 (h) $\dfrac{2}{9}$ of 211km

Question 5: Work out the largest of each of the following pairs.

(a) $\dfrac{1}{3}$ of 21 or $\dfrac{1}{2}$ of 12 (b) $\dfrac{1}{6}$ of 30 or $\dfrac{2}{3}$ of 9 (c) $\dfrac{2}{5}$ of 65 or $\dfrac{3}{4}$ of 32

(d) $\dfrac{1}{5}$ of 2m or $\dfrac{3}{4}$ of 60cm (e) $\dfrac{3}{8}$ of a day or $\dfrac{1}{10}$ of 85 hours

(f) $\dfrac{7}{15}$ of 480 or $\dfrac{2}{3}$ of 453 (g) $\dfrac{3}{10}$ of 395 or $\dfrac{2}{7}$ of 420

Apply

Question 1: James has 20 sweets.

$\dfrac{3}{4}$ of the sweets are red.

How many sweets are red?

Question 2: In a class, there are 24 students.

$\dfrac{1}{8}$ of the students wear glasses.

How many students wear glasses?

Question 3: There are 40 apples in a crate.

$\dfrac{3}{5}$ of the apples are bad.

How many good apples are there?
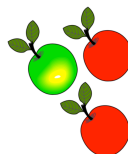
Question 4: On Wednesday, James slept for $\frac{3}{8}$ of the day

(a) How many hours did James spend sleeping?

(b) For how many hours was James awake?

(c) What fraction of the day was James awake?

Question 5: Declan won £6000 in a competition.

He invests $\frac{2}{5}$ of the money.

How much money did Declan invest?

Question 6: Katie has £1200.

She gives $\frac{1}{3}$ of the money to her sister.

Then Katie gives $\frac{1}{4}$ of the remaining money to her brother.

How much money does Katie have left?

Question 7: The attendance at a Sheffield United match is 15,291

$\frac{2}{9}$ of the crowd are children.

How many adults attended the match?

Question 8: There are 194 students in a primary school.

Mr Wallace says that exactly $\frac{1}{4}$ of the students are left handed.

Explain why Mr Wallace must be wrong.

Question 9: Connor has saved £450.

He spends $\frac{1}{5}$ of the £450 on a new tyre for his car.

Connor spends $\frac{2}{3}$ of the £450 on a new guitar.

What fraction of the £450 does Connor have left?

Question 10: The size of a jar of coffee is increased by one-fifth.
The new size is later reduced by one-fifth.
Is the new jar smaller, the same size or larger than the original?
Explain how you worked out your answer.

Question 11: A company earns £3,178,784 in 2016.

$\frac{4}{7}$ of the income is spent on salaries.

How much money does the company spend on salaries in 2016?

Answers

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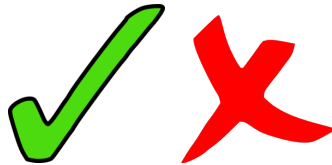
Examples

Workout

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Question 1:   Find the original number for each question below.

(a) $\frac{1}{2}$ of a number is 7, what is the number?   (b) $\frac{1}{3}$ of a number is 4, what is the number?

(c) $\frac{1}{4}$ of a number is 8, what is the number?   (d) $\frac{1}{5}$ of a number is 9, what is the number?

(e) $\frac{1}{2}$ of a number is 12.5, what is the number?   (f) $\frac{1}{3}$ of a number is 27, what is the number?

(g) $\frac{1}{10}$ of a number is 2.6, what is the number?   (h) $\frac{1}{12}$ of a number is 8, what is the number?

Question 2:   Find the original number for each question below.

(a) $\frac{2}{3}$ of a number is 12, what is the number?   (b) $\frac{2}{5}$ of a number is 10, what is the number?

(c) $\frac{2}{7}$ of a number is 6, what is the number?   (d) $\frac{3}{10}$ of a number is 60, what is the number?

(e) $\frac{4}{9}$ of a number is 12, what is the number?   (f) $\frac{2}{3}$ of a number is 3, what is the number?

(g) $\frac{3}{4}$ of a number is 27, what is the number?   (h) $\frac{5}{12}$ of a number is 35, what is the number?

Question 3:   Find the original number for each question below.

(a) A number is increased by $\frac{1}{3}$ to 16. What was the number?

(b) A number is increased by $\frac{1}{5}$ to 36. What was the number?

(c) A number is decreased by $\frac{1}{4}$ to 21. What was the number?

(d) A number is decreased by $\frac{1}{10}$ to 162. What was the number?

(e) A number is increased by $\frac{2}{5}$ to 49. What was the number?

(f)   A number is increased by $\frac{3}{8}$ to 22. What was the number?

(g)   A number is decreased by $\frac{4}{5}$ to 12. What was the number?

(h) A number is decreased by $\frac{13}{20}$ to 1400. What was the number?

Apply

Question 1:   Rebecca is $\frac{1}{3}$ of Barry's age.

Barry is $\frac{1}{6}$ of Neville's age.

If Rebecca is 4 years old, how old is Neville?

Question 2:   A new snack bar contains 7.5g of sugar.

$\frac{3}{10}$ of the snack bar is sugar.

Work out the mass of the snack bar.

Question 3:   In a class, $\frac{2}{7}$ of the students have blonde hair.

There are 20 students without blonde hair.

How many students are in the class?

Question 4:   The height of a tree increased by $\frac{4}{15}$ during 2016.

The tree is 2.47m by the end of 2016.

Work out the height of the tree at the beginning of 2016.

Question 5:   Laura invested some money.

In the first year, the amount of money increased by $\frac{1}{20}$

In the second year, the amount of money increased by $\frac{1}{5}$

In the third year, the amount of money decreased by $\frac{1}{4}$

Was the investment a success?

Corbett maths

Workout

Question 1:

(a) Increase 40 by $\frac{1}{2}$

(b) Increase 18 by $\frac{1}{3}$

(c) Decrease 20 by $\frac{1}{4}$

(d) Increase 30 by $\frac{1}{5}$

(e) Decrease 24 by $\frac{1}{8}$

(f) Decrease 70 by $\frac{1}{10}$

(g) Increase 120 by $\frac{1}{3}$

(h) Decrease 80 by $\frac{1}{5}$

(i) Increase 72 by $\frac{1}{9}$

Question 2:

(a) Increase 12 by $\frac{2}{3}$

(b) Decrease 40 by $\frac{3}{10}$

(c) Increase 30 by $\frac{2}{5}$

(d) Decrease 16 by $\frac{3}{4}$

(e) Increase 90 by $\frac{7}{10}$

(f) Decrease 14 by $\frac{3}{7}$

(g) Increase 48 by $\frac{5}{8}$

(h) Decrease 54 by $\frac{2}{9}$

(i) Increase 84 by $\frac{3}{4}$

(j) Increase 275 by $\frac{2}{5}$

(k) Decrease 240 by $\frac{3}{8}$

(l) Increase 324 by $\frac{7}{9}$

Question 3:

(a) Increase 60cm by $\frac{3}{10}$

(b) Decrease 120kg by $\frac{1}{4}$

(c) Increase 400ml by $\frac{2}{5}$

(d) Increase 14g by $\frac{1}{5}$

(e) Decrease 50 litres by $\frac{1}{8}$

(f) Increase 130ml by $\frac{3}{4}$

(g) Increase £76 by $\frac{2}{5}$

(h) Increase 92cm by $\frac{3}{20}$

(i) Increase 1.4kg by $\frac{7}{8}$

Apply

Question 1: Annie is paid £300 per week.
She is going to get a pay rise and her pay will increase by a $\frac{1}{5}$

What will her weekly pay be after the pay rise?

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Question 2: Last season, the number of points a rugby team scored was 420.

This season, the number of points they scored increased by $\frac{2}{3}$

How many points did the team score this season?

Question 3: A jam jar usually contains 420g of jam.

A special edition jar contains $\frac{3}{10}$ more jam.

How much extra jam is in the special edition jar?

Question 4: Find the missing values

(a) 60 reduced by a $\frac{1}{3}$ is the same as 50 reduced by a $\boxed{?}$

(b) 72 increased by a $\frac{3}{4}$ is the same as $\boxed{?}$ reduced by a $\frac{1}{10}$

Question 5: In 1990, the number of birds that live on an island was 1,200.

By 2010, the number of birds that live on the island increased by $\frac{9}{4}$

How many birds live on the island in 2010?

Question 6: Tia is training for a marathon using a special training programme.

Each month she runs $\frac{2}{5}$ more miles than she did in the previous month.

In January, Tia ran 15 miles.

(a) How many miles did Tia run in February?

(b) How many miles did Tia run in March?

David says that Tia will not follow the special training programme forever.

(c) Explain why David is right.

Examples

Workout

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Question 1: Work out the following additions.
You may use the shapes to help.

(a)

$\frac{1}{3}$ + $\frac{1}{3}$ =

(b)

$\frac{2}{5}$ + $\frac{1}{5}$ =

(c)

$\frac{2}{7}$ + $\frac{4}{7}$ =

(d)

$\frac{2}{15}$ + $\frac{11}{15}$ =
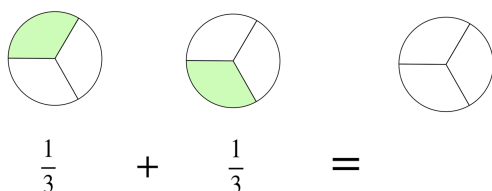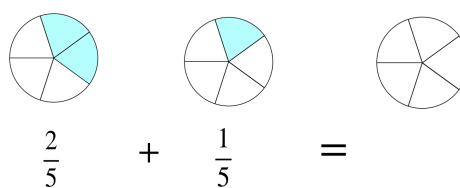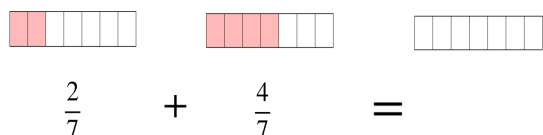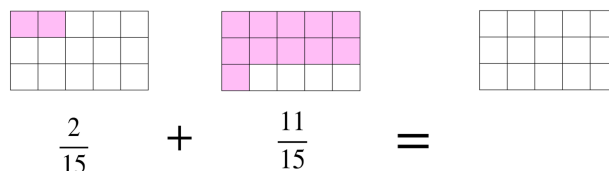
Question 2: Work out the following additions

(a) $\frac{1}{5} + \frac{1}{5}$

(b) $\frac{3}{11} + \frac{2}{11}$

(c) $\frac{1}{9} + \frac{7}{9}$

(d) $\frac{3}{7} + \frac{3}{7}$

(e) $\frac{6}{11} + \frac{2}{11}$

(f) $\frac{7}{13} + \frac{4}{13}$

(g) $\frac{3}{5} + \frac{1}{5}$

(h) $\frac{10}{21} + \frac{10}{21}$

Question 3: Work out the following subtractions

(a) $\frac{3}{5} - \frac{1}{5}$

(b) $\frac{6}{7} - \frac{2}{7}$

(c) $\frac{4}{5} - \frac{3}{5}$

(d) $\frac{7}{13} - \frac{1}{13}$

(e) $\frac{9}{11} - \frac{6}{11}$

(f) $\frac{16}{21} - \frac{8}{21}$

(g) $\frac{5}{6} - \frac{5}{6}$

(h) $\frac{16}{25} - \frac{9}{25}$

Question 4: Work out the following additions and subtractions
Simplify your answers if possible

(a) $\frac{1}{4} + \frac{1}{4}$

(b) $\frac{5}{6} - \frac{1}{6}$

(c) $\frac{3}{8} + \frac{3}{8}$

(d) $\frac{7}{10} - \frac{3}{10}$

(e) $\dfrac{2}{9} + \dfrac{4}{9}$ (f) $\dfrac{3}{20} + \dfrac{7}{20}$ (g) $\dfrac{1}{12} + \dfrac{5}{12}$ (h) $\dfrac{17}{30} - \dfrac{7}{30}$

(i) $\dfrac{19}{20} - \dfrac{7}{20}$ (j) $\dfrac{11}{18} + \dfrac{5}{18}$ (k) $\dfrac{9}{16} - \dfrac{7}{16}$ (l) $\dfrac{19}{80} + \dfrac{31}{80}$

Question 5:   Work out the following additions.

(a) $\dfrac{2}{3} + \dfrac{2}{3}$ (b) $\dfrac{4}{5} + \dfrac{3}{5}$ (c) $\dfrac{7}{10} + \dfrac{4}{10}$ (d) $\dfrac{3}{8} + \dfrac{5}{8}$

(e) $\dfrac{9}{11} + \dfrac{10}{11}$ (f) $\dfrac{9}{20} + \dfrac{13}{20}$ (g) $\dfrac{8}{13} + \dfrac{6}{13}$ (h) $\dfrac{41}{50} + \dfrac{19}{50}$

Apply

Question 1:   On Monday, James ate $\dfrac{1}{8}$ of a cake.

On Tuesday, he ate $\dfrac{3}{8}$ of the same cake.

In total, how much of the cake has James eaten?

Question 2:   At a rugby match, $\dfrac{3}{5}$ of the crowd are male.

What fraction of the crowd are female?

Question 3:   In one season, a netball team won $\dfrac{4}{7}$ of their matches.

They drew $\dfrac{2}{7}$ of their matches.

What fraction of the matches did they lose?

Question 4:   In a school, pupils study French, German or Spanish.

$\dfrac{1}{9}$ of the pupils study Spanish.

Half of the remaining pupils study French.

What fraction of the pupils study French?

Question 5: Find the distance from the hotel to the shop.

$\frac{11}{12}\ km$

Beach   Hotel   Shop

$\frac{5}{12}\ km$?
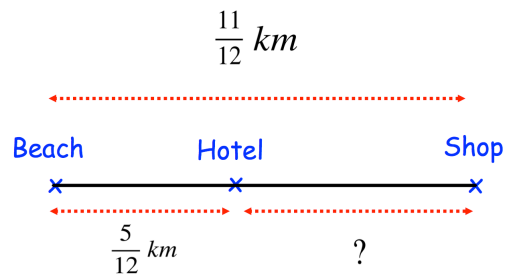
Question 6: A wooden rod is $\frac{4}{5}\ m$ long.

Find the total length of 4 wooden rods.

Question 7: Three fractions have been added together and the answer is $\frac{17}{20}$

Write down three fractions that may have been added together.

Question 8: James adds together two fractions.
Both fractions are the same.

The answer is $1\frac{5}{9}$

Find the two fractions.

Question 9: Will has completed his homework.
Can you spot any mistakes?

Question 1

Work out

$\frac{11}{15} - \frac{2}{15}$

$\dfrac{13}{15}$

Simplify your answer.

Question 2

There are red counters, blue counters and green counters in a bag.
⅝ of the counters are red.
⅛ of the counters are blue.

What fraction of the counters are green?

$\dfrac{6}{8} = \dfrac{3}{4}$

Answers

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131

Workout

Question 1:   Arrange the following sets of fractions in order, from smallest to largest

(a) $\dfrac{6}{7}$, $\dfrac{1}{7}$, $\dfrac{2}{7}$, $\dfrac{5}{7}$

(b) $\dfrac{3}{10}$, $\dfrac{9}{10}$, $\dfrac{1}{10}$, $\dfrac{7}{10}$

(c) $\dfrac{2}{9}$, $\dfrac{8}{9}$, $\dfrac{5}{9}$, $\dfrac{1}{9}$

Question 2:   Arrange the following sets of fractions in order, from smallest to largest

(a) $\dfrac{1}{5}$, $\dfrac{3}{10}$, $\dfrac{2}{5}$, $\dfrac{1}{10}$

(b) $\dfrac{1}{8}$, $\dfrac{1}{4}$, $\dfrac{5}{8}$, $\dfrac{3}{4}$

(c) $\dfrac{5}{9}$, $\dfrac{2}{3}$, $\dfrac{7}{9}$, $\dfrac{1}{3}$

(d) $\dfrac{3}{5}$, $\dfrac{13}{20}$, $\dfrac{2}{5}$, $\dfrac{9}{20}$

(e) $\dfrac{5}{6}$, $\dfrac{7}{12}$, $\dfrac{5}{12}$, $\dfrac{11}{12}$

(f) $\dfrac{7}{20}$, $\dfrac{23}{60}$, $\dfrac{9}{20}$, $\dfrac{29}{60}$

Question 3:   Arrange the following sets of fractions in order, from smallest to largest

(a) $\dfrac{2}{3}$, $\dfrac{11}{15}$, $\dfrac{7}{15}$, $\dfrac{3}{5}$

(b) $\dfrac{13}{20}$, $\dfrac{3}{4}$, $\dfrac{7}{10}$, $\dfrac{11}{20}$

(c) $\dfrac{1}{2}$, $\dfrac{2}{3}$, $\dfrac{7}{12}$, $\dfrac{5}{6}$

(d) $\dfrac{13}{16}$, $\dfrac{3}{4}$, $\dfrac{5}{8}$, $\dfrac{11}{16}$

(e) $\dfrac{3}{50}$, $\dfrac{7}{100}$, $\dfrac{1}{10}$, $\dfrac{9}{200}$

(f) $\dfrac{13}{20}$, $\dfrac{4}{5}$, $\dfrac{7}{10}$, $\dfrac{23}{40}$

Question 4:   Arrange the following sets of fractions in order, from smallest to largest

(a) $\dfrac{3}{4}$, $\dfrac{2}{3}$, $\dfrac{5}{6}$, $\dfrac{1}{3}$

(b) $\dfrac{1}{4}$, $\dfrac{3}{8}$, $\dfrac{1}{6}$, $\dfrac{5}{12}$

(c) $\dfrac{9}{20}$, $\dfrac{5}{12}$, $\dfrac{3}{10}$, $\dfrac{17}{30}$

(d) $\dfrac{3}{25}$, $\dfrac{1}{10}$, $\dfrac{1}{8}$, $\dfrac{7}{50}$

(e) $\dfrac{27}{40}$, $\dfrac{3}{5}$, $\dfrac{5}{8}$, $\dfrac{6}{15}$

(f) $\dfrac{7}{20}$, $\dfrac{1}{3}$, $\dfrac{3}{8}$, $\dfrac{2}{5}$

Apply

Question 1:   Write down a fraction between $\dfrac{2}{3}$ and $\dfrac{4}{5}$

Question 2:   Write down a fraction between $\dfrac{5}{8}$ and $\dfrac{2}{3}$

St Andrew's Academy

Mathematics Department
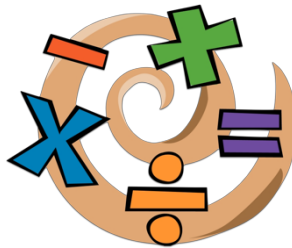
BLOCK FOUR

Number	Algebra	Fractions 2
• Square numbers • Square roots. • Cube numbers. • Cube roots.	• Number patterns. • Linear patterns.	• Converting to mixed numbers. • Converting to improper fractions. • Add/Subtract fractions with different denominators. • Add/Subtract mixed numbers.

Corbett maths

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Question 1: Write each of the following as multiplications
e.g. $5^2 = 5 \times 5$

(a) 3^2 (b) 1^2 (c) 6^2 (d) 9^2 (e) 10^2 (f) 4^2 (g) 12^2

Question 2: Write each of the following using the "squared" symbol
e.g. $8 \times 8 = 8^2$

(a) 2×2 (b) 5×5 (c) 11×11 (d) 35×35 (e) 20×20 (f) 13×13 (g) 7×7

Question 3: Work out each of the following

(a) 5^2 (b) 3^2 (c) 8^2 (d) 9^2 (e) 2^2 (f) 10^2 (g) 7^2

(h) 1^2 (i) 4^2 (j) 6^2 (k) 11^2 (l) 20^2 (m) 12^2 (n) 50^2

Question 4: Write down the first 10 square numbers

Question 5: Work out each of the following.
You may not use a calculator

(a) 14^2 (b) 18^2 (c) 21^2 (d) 27^2 (e) 35^2 (f) 19^2 (g) 28^2

(h) 43^2 (i) 56^2 (j) 81^2 (k) 92^2 (l) 99^2 (m) 120^2 (n) 163^2

Question 6: Work out each of the following.
You may use a calculator

(a) 73^2 (b) 59^2 (c) 208^2 (d) 199^2 (e) 6.5^2 (f) 8.2^2 (g) 7.8^2

(h) 0.7^2 (i) 27.6^2 (j) 0.45^2 (k) 19.11^2 (l) 800^2 (m) 1000^2 (n) 1111^2

Apply

Question 1:   Write down the square numbers from the list below

91   101   10   2   4   81   200   16   90   121

Question 2:   100 can be written as the sum of two different square numbers.
              Which two square numbers?

Question 3:   85 can be written as the sum of two square numbers in two different ways.
              Show how this can be done.

Question 4:   Tom says "if you square a number the answer is always bigger."
              Show Tom is incorrect using two different examples.

Question 5:   James is adding up consecutive triangular numbers
              (a) Write down the first 10 triangular numbers (you may research this)
              (b) Add together the first and second triangular numbers.
              (c) Add together the second and third triangular numbers.
              (d) Add together the third and fourth triangular numbers.
              (e) What do you notice about your answers?
              (f) Will this always happen? Can you explain why?

Question 6:   Rebecca says "when you add three consecutive square numbers, the answer is
              always odd."
              Is Rebecca right? Explain your answer.

Answers

Question 7:   Duncan has answered the questions below.
              Can you spot any mistakes?

Write down the value of

(a) 3^2

$3 \times 2 = 6$ 6
                                        ....
                                            (1)   Click here

(b) seven squared

$7 \times 2 = 14$ 14
                                        ....
                                            (1)

(c) 8^2

$8 \times 2 = 16$ 16   Scan here
                                        ....   © CORBETTMATHS 2018
                                            (1)

135

Corbett maths

Examples

Workout

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Question 1:   Work out each of the following

(a) $\sqrt{9}$ (b) $\sqrt{25}$ (c) $\sqrt{100}$ (d) $\sqrt{4}$ (e) $\sqrt{36}$ (f) $\sqrt{64}$

(g) $\sqrt{16}$ (h) $\sqrt{81}$ (i) $\sqrt{144}$ (j) $\sqrt{121}$ (k) $\sqrt{1}$ (l) $\sqrt{0}$

Question 2:   Below is a list of numbers.

0   1   4   7   8   9   11   15   20   25   29

From the list write down:

(a)   The square root of 81
(b)   The square root of 225
(c)   The square root of 400
(d)   The square root of 1

Question 3:   Work out each of the following
You may use a calculator

(a) $\sqrt{324}$ (b) $\sqrt{1444}$ (c) $\sqrt{841}$ (d) $\sqrt{4225}$ (e) $\sqrt{21316}$ (f) $\sqrt{652864}$

(g) $\sqrt{29.16}$ (h) $\sqrt{53.29}$ (i) $\sqrt{0.16}$ (j) $\sqrt{216.09}$ (k) $\sqrt{123.21}$ (l) $\sqrt{13.1044}$

Question 4:   Between which two consecutive integers do each of the following lie between?
e.g. $\sqrt{53}$ lies between 7 and 8

(a) $\sqrt{20}$ (b) $\sqrt{97}$ (c) $\sqrt{6}$ (d) $\sqrt{41}$ (e) $\sqrt{130}$ (f) $\sqrt{250}$

Question 5:   Estimate each of the following.
Give each estimate to 1 decimal place.

(a) $\sqrt{56}$ (b) $\sqrt{10}$ (c) $\sqrt{95}$ (d) $\sqrt{63}$ (e) $\sqrt{150}$ (f) $\sqrt{86}$

Question 6:   Using your calculator, work out the answers to Question 5.

Square Root

Apply

Question 1: Harriet thinks of a number.
She squares it and then adds 11.
Harriet's answer is 36.
What was her original number?

Question 2: A square has an area of 225cm².
Work out the perimeter of the square.

Question 3: Place each of the digits in the correct position to make the correct calculation.

| 1 | 2 | 4 | 8 | 9 |

$$\sqrt{\square\square\square} = \square\square$$

Question 4: Can you spot any mistakes?

Write down the value of

(a) $\sqrt{16}$

................8................ **(1)**

(b) $\sqrt{100}$

................50................ **(1)**

Question 5: x is a positive integer.
Find the value of x.

$$\sqrt{3^2 + 4^2 + 12^2} = \sqrt{3^2 + 4^2} + \sqrt{x^2}$$

Question 6: In 1980 a man's age was the square root of the number of the year of his birth.

(a) When was he born?
(b) Did he have to join the forces in the First World War or the Second World War?

Answers
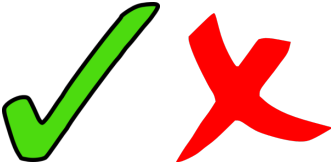
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Examples

Workout

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Question 1: Write each of the following as multiplications
e.g. $4^3 = 4 \times 4 \times 4$

(a) 5^3 (b) 2^3 (c) 9^3 (d) 10^3 (e) 7^3 (f) 0.2^3 (g) 15^3

Question 2: Write each of the following using the "cubed" symbol
e.g. $8 \times 8 \times 8 = 8^3$

(a) $4 \times 4 \times 4$ (b) $1 \times 1 \times 1$ (c) $6 \times 6 \times 6$ (d) $11 \times 11 \times 11$

(e) $0.5 \times 0.5 \times 0.5$ (f) $27 \times 27 \times 27$ (g) $500 \times 500 \times 500$

Question 3: Work out each of the following
You may not use a calculator

(a) 2^3 (b) 1^3 (c) 5^3 (d) 6^3 (e) 9^3 (f) 10^3 (g) 20^3

(h) 4^3 (i) 8^3 (j) 3^3 (k) 50^3 (l) 15^3 (m) 12^3 (n) 21^3

Question 4: Write down the first 10 cube numbers

Question 5: Work out each of the following.
You may use a calculator

(a) 53^3 (b) 39^3 (c) 108^3 (d) 99^3 (e) 3.5^3 (f) 7.2^3 (g) 6.8^3

(h) 0.7^3 (i) 12.6^3 (j) 0.45^3 (k) 8.11^3 (l) 600^3 (m) 1000^3 (n) 1111^3

Cubing a Number
Videos 212 and 213 on www.corbettmaths.com

Apply

Question 1:   James says the sum of the first two cube numbers is a square number.

(a) Is he correct?
(b) What about the first three cube numbers?
(c) What about the first four cube numbers?

Question 2:   Tom says "if you cube a number the answer is always bigger."
Show Tom is incorrect using two different examples.

Question 3:   Work out the following

(a) $(-2)^3$ (b) $(-1)^3$ (c) $(-10)^3$ (d) $(-5)^3$

Question 4:   Rebecca says "when you add three consecutive cube numbers, the answer is always odd."
Is Rebecca right? Explain your answer.

Question 5:   Work out the volume of this cube.

7cm
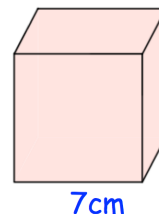
Question 6:   Find three numbers that are square numbers **and** cube numbers

Answers

✓ ✗

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Examples

Workout

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Question 1: Work out each of the following

(a) $\sqrt[3]{8}$ (b) $\sqrt[3]{1}$ (c) $\sqrt[3]{0}$ (d) $\sqrt[3]{125}$ (e) $\sqrt[3]{1000}$ (f) $\sqrt[3]{27}$

(g) $\sqrt[3]{512}$ (h) $\sqrt[3]{64}$ (i) $\sqrt[3]{343}$ (j) $\sqrt[3]{729}$ (k) $\sqrt[3]{216}$ (l) $\sqrt[3]{8000}$

Question 2: Below is a list of numbers.

0   1   4   7   8   9   11   15   20   27   30

From the list write down:

(a)   The cube root of 64
(b)   The cube root of 1
(c)   The cube root of 27000
(d)   The cube root of 512

Question 3: Work out each of the following
You may use a calculator

(a) $\sqrt[3]{1331}$ (b) $\sqrt[3]{13824}$ (c) $\sqrt[3]{1728}$ (d) $\sqrt[3]{3375}$ (e) $\sqrt[3]{2744}$ (f) $\sqrt[3]{125000}$

(g) $\sqrt[3]{0.125}$ (h) $\sqrt[3]{42.875}$ (i) $\sqrt[3]{0.064}$ (j) $\sqrt[3]{1.728}$ (k) $\sqrt[3]{17.576}$ (l) $\sqrt[3]{1.953125}$

Question 4: Between which two consecutive integers do each of the following lie between?
e.g. $\sqrt[3]{200}$ lies between 5 and 6

(a) $\sqrt[3]{50}$ (b) $\sqrt[3]{20}$ (c) $\sqrt[3]{400}$ (d) $\sqrt[3]{5}$ (e) $\sqrt[3]{950}$ (f) $\sqrt[3]{777}$

Question 5: Estimate each of the following.
Give each estimate to 1 decimal place.

(a) $\sqrt[3]{45}$ (b) $\sqrt[3]{130}$ (c) $\sqrt[3]{500}$ (d) $\sqrt[3]{3}$ (e) $\sqrt[3]{90}$ (f) $\sqrt[3]{140}$

Question 6: Using your calculator, work out the answers to Question 5.

Corbett maths

Apply

Question 1: James says the cube root of 64 is 8. Explain his mistake.

$\sqrt[3]{64}$

Question 2: Megan says the cube root of 27 is 9. Explain her mistake.

$\sqrt[3]{27}$

Question 3: The cube root of 1 is 1. Find another number so that when it is cube rooted, it gives the same value.

Question 4: Harry has thought of a number.
He works out the cube root of the number.
Harry says his answer is larger than his starting number.
Archie says he must be wrong.

Show that Harry could be correct.

Question 5: Work out the following cube roots

(a) $\sqrt[3]{-8}$ (b) $\sqrt[3]{-1}$ (c) $\sqrt[3]{-27}$ (d) $\sqrt[3]{-1000}$

Question 6: Shown is a cube with a volume of 8000cm³
Find x

Volume = 8000cm³
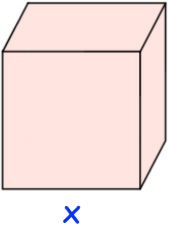
x

Answers

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Question 1:   Write down the first 10 triangular numbers.
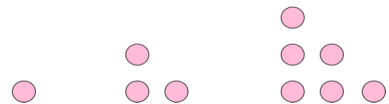
Question 2:   From the box, list any triangular number.

80
2   10   18
40   12
3   25
36
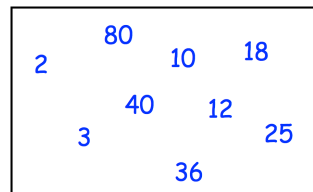
Question 1:   Write down two numbers that are triangular numbers **and** square numbers.

Question 2:   Hannah adds together two consecutive triangular numbers.
              What kind of number does Hannah get?

Question 3:   At a party, everybody shakes hands with each other, once.
              Work out how many handshakes there are in total, if there are

              (a) 4 people at the party

              (b) 5 people at the party

              (c) 8 people at the party

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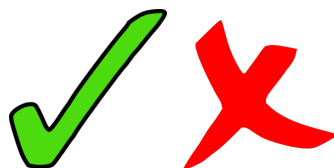
Workout

Question 1: Find the nth term for each of the following sequences

(a)   5, 8, 11, 14, … …

(b)   9, 14, 19, 24, … …

(c)   1, 3, 5, 7, … …

(d)   10, 14, 18, 22, … …

(e)   2, 7, 12, 17, … …

(f)   3, 9, 15, 21, … …

(g)   11, 31, 51, 71, … …

(h)   20, 23, 26, 29, … …

(i)   1, 7, 13, 19, … …

(j)   100, 125, 150, 175, … …

(k)   13, 22, 31, 40, … …

(l)   1.5, 2, 2.5, 3, … ..

Question 2: Find the nth term for each of the following sequences

(a)   10, 7, 4, 1, … …

(b)   6, 4, 2, 0, … …

(c)   9, 4, -1, -6, … …

(d)   20, 10, 0, -10, … …

(e)   5, -1, -7, -13, … …

(f)   5, 4, 3, 2, … …

(g)   -6, -13, -20, -27, … …

(h)   -10, -13, -16, -19, … …

(i)   2.5, 2, 1.5, 1, … ..

Question 3:   Find the 100th term for each sequence in Questions 1 and 2.

Question 4:   The nth term for some sequences are given below.
           Find the first 5 terms for each sequence.

(a)   5n + 3

(b)   2n + 9

(c)   3n – 2

(d)   10n – 6

(e)   9n + 10

(f)   n + 8

(g)   −7n + 20

(h)   50 – 5n

(i)   3.5n + 4

Question 5:

(a) Is 205 a term in the sequence 1, 5, 9, 13, … … ?

(b) Is 200 a term in the sequence 4, 10, 16, 22, … … ?

(c) Is 1000 a term in the sequence 50, 65, 80, 95, … … ?

(d) Is 999 a term in the sequence 11, 20, 29, 38, … … ?

(e) Is 458 a term in the sequence 5, 12, 19, 26, … … ?

Question 6:   Which term in the sequences below is the first to be greater than 250?

(a) 9, 13, 17, 21, … …

(b) 2, 10, 18, 26, … …

(c) 1, 7, 13, 19, … …

Question 7:   Find the nth term for each of the following sequences

(a) $\dfrac{1}{2} , \dfrac{3}{4} , \dfrac{5}{6} , \dfrac{7}{8} , …$ …

(b) $\dfrac{9}{11} , \dfrac{13}{16} , \dfrac{17}{21} , \dfrac{21}{26} , …$ …

(c) $\dfrac{3}{7} , \dfrac{6}{12} , \dfrac{9}{17} , \dfrac{12}{22} , …$ …

(d) $\dfrac{1}{2} , \dfrac{2}{3} , \dfrac{3}{4} , \dfrac{4}{5} , …$ …

(e) $\dfrac{20}{21} , \dfrac{25}{32} , \dfrac{30}{43} , \dfrac{35}{54} , …$ …

(f) $\dfrac{99}{100} , \dfrac{97}{95} , \dfrac{95}{90} , \dfrac{93}{85} , …$ …

Question 8:   Find the 20th term for each of the sequences in Question 7.

Apply

Question 1:   Calculate the difference between the 10th term and 50th term of the sequence
9, 14, 19, 24, … …

Question 2:   Calculate the sum of the 100th term and 200th term of the sequence
6, 15, 24, 33, … …

Question 3:   Calculate the difference between the 30th term and 60th term of the sequence
8, 3, -2, -7, … …

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Question 4: Here are the nth terms of 4 sequences.

Sequence 1   nth term $4n + 3$
Sequence 2   nth term $7n + 1$
Sequence 3   nth term $14n$
Sequence 4   nth term $8n - 1$

For each sequence state whether the numbers in the sequence are

A   Always multiples of 7
S   Sometimes multiples of 7
N   Never multiples of 7

Sequence 1 .... Sequence 2 .... Sequence 3 ....   Sequence 4 ....

Question 5: Can you spot any mistakes?

A sequence of numbers is shown below.

$$+7 \quad +7 \quad +7$$

8   15   22   29   ...   ...

(a) Find an expression for the *n*th term of the sequence.

n+7
....
(2)

(b) Explain why 96 will not be a term in this sequence.

...96 is not a multiple of 7.

(2)

Improper Fractions & Mixed Numbers
Videos 139 and 140 on www.corbettmaths.com

Workout

Question 1:   Change these improper fractions into mixed numbers

(a) $\dfrac{7}{3}$ (b) $\dfrac{7}{5}$ (c) $\dfrac{5}{2}$ (d) $\dfrac{8}{7}$ (e) $\dfrac{5}{3}$

(f) $\dfrac{10}{3}$ (g) $\dfrac{23}{2}$ (h) $\dfrac{11}{4}$ (i) $\dfrac{11}{8}$ (j) $\dfrac{9}{4}$

(k) $\dfrac{13}{10}$ (l) $\dfrac{13}{6}$ (m) $\dfrac{16}{7}$ (n) $\dfrac{51}{10}$ (o) $\dfrac{34}{11}$

(p) $\dfrac{29}{12}$ (q) $\dfrac{60}{11}$ (r) $\dfrac{47}{15}$ (s) $\dfrac{101}{9}$ (t) $\dfrac{99}{20}$

(u) $\dfrac{12}{9}$ (v) $\dfrac{35}{10}$ (w) $\dfrac{18}{4}$ (x) $\dfrac{50}{6}$ (y) $\dfrac{40}{15}$

Question 2:   Change these mixed numbers into improper fractions

(a) $2\dfrac{1}{5}$ (b) $3\dfrac{1}{2}$ (c) $1\dfrac{3}{4}$ (d) $3\dfrac{2}{3}$ (e) $1\dfrac{2}{5}$

(f) $2\dfrac{4}{7}$ (g) $1\dfrac{1}{3}$ (h) $2\dfrac{3}{10}$ (i) $4\dfrac{3}{4}$ (j) $1\dfrac{7}{12}$

(k) $3\dfrac{9}{10}$ (l) $2\dfrac{3}{50}$ (m) $3\dfrac{5}{8}$ (n) $8\dfrac{3}{8}$ (o) $1\dfrac{14}{32}$

(p) $2\dfrac{19}{24}$ (q) $12\dfrac{1}{9}$ (r) $5\dfrac{4}{15}$ (s) $4\dfrac{11}{12}$ (t) $13\dfrac{7}{16}$

Apply

Question 1:   Match up the improper fractions and mixed numbers.

$2\dfrac{1}{4}$ $2\dfrac{1}{3}$ $1\dfrac{3}{4}$ $3\dfrac{2}{3}$

$\dfrac{7}{4}$ $\dfrac{11}{3}$ $\dfrac{7}{3}$ $\dfrac{9}{4}$

Question 2:   Arrange these improper fractions in order, starting with the smallest.

$$\dfrac{23}{4} \ , \ \dfrac{37}{7} \ , \ \dfrac{11}{2}$$

Question 3:   Write down a mixed number between $3\dfrac{3}{11}$ and $3\dfrac{2}{5}$

Question 4:   Gregory feeds his cat $\dfrac{2}{5}$ of a can of cat food each day.

Work out how many cans of cat food are eaten each fortnight.

Give your answer as a mixed number.

Question 5:   13   9   21   5   2

Using the cards, create an improper fraction that is:

(a) between 1 and 2
(b) between 2 and 3
(c) between 4 and 5
(d) between 5 and 10
(e) greater than 10

Corbett maths

Examples

Workout

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Question 1: Work out the following additions and subtractions.
Give your answers as simplified fractions.

(a) $\dfrac{2}{5} + \dfrac{1}{2}$

(b) $\dfrac{2}{7} + \dfrac{1}{2}$

(c) $\dfrac{1}{3} + \dfrac{1}{2}$

(d) $\dfrac{4}{5} - \dfrac{2}{3}$

(e) $\dfrac{8}{9} - \dfrac{1}{3}$

(f) $\dfrac{2}{3} + \dfrac{1}{6}$

(g) $\dfrac{3}{10} + \dfrac{2}{5}$

(h) $\dfrac{3}{8} + \dfrac{1}{4}$

(i) $\dfrac{7}{15} - \dfrac{1}{5}$

(j) $\dfrac{3}{4} - \dfrac{2}{5}$

(k) $\dfrac{3}{10} + \dfrac{3}{8}$

(l) $\dfrac{2}{5} + \dfrac{4}{7}$

(m) $\dfrac{11}{15} - \dfrac{1}{6}$

(n) $\dfrac{5}{11} + \dfrac{1}{4}$

(o) $\dfrac{3}{14} + \dfrac{1}{3}$

(p) $\dfrac{11}{13} - \dfrac{1}{2}$

(q) $\dfrac{7}{20} + \dfrac{2}{5}$

(r) $\dfrac{8}{9} - \dfrac{3}{5}$

(s) $\dfrac{11}{18} + \dfrac{1}{6}$

(t) $\dfrac{39}{100} - \dfrac{7}{20}$

(u) $\dfrac{4}{15} + \dfrac{5}{12}$

(v) $\dfrac{2}{3} - \dfrac{9}{16}$

(w) $\dfrac{19}{30} + \dfrac{1}{8}$

(x) $\dfrac{7}{12} + \dfrac{3}{14}$

Question 2: Work out the following additions.
Give your answers as simplified fractions.
If necessary, give any answers as mixed numbers.

(a) $\dfrac{3}{4} + \dfrac{1}{2}$

(b) $\dfrac{5}{9} + \dfrac{2}{3}$

(c) $\dfrac{7}{10} + \dfrac{1}{3}$

(d) $\dfrac{4}{5} + \dfrac{3}{4}$

(e) $\dfrac{19}{20} + \dfrac{4}{5}$

(f) $\dfrac{5}{9} + \dfrac{13}{18}$

(g) $\dfrac{5}{12} + \dfrac{9}{10}$

(h) $\dfrac{4}{7} + \dfrac{7}{8}$

Question 3: Work out the following additions and subtractions.
Give your answers as simplified fractions.
If necessary, give any answers as mixed numbers.

(a) $1\dfrac{1}{2} + \dfrac{2}{3}$

(b) $\dfrac{7}{9} + 1\dfrac{1}{3}$

(c) $1\dfrac{3}{5} - \dfrac{3}{4}$

(d) $1\dfrac{5}{8} - 1\dfrac{1}{4}$

(e) $2\frac{1}{2} + 1\frac{1}{3}$ (f) $2\frac{2}{9} - 1\frac{1}{3}$ (g) $2\frac{2}{9} + \frac{5}{6}$ (h) $1\frac{5}{12} + 1\frac{5}{8}$

(i) $3\frac{1}{10} + 2\frac{2}{3}$ (j) $1\frac{8}{9} - \frac{4}{7}$ (k) $3\frac{2}{3} - 1\frac{11}{20}$ (l) $4\frac{8}{15} + 3\frac{1}{3}$

Apply

Question 1: In a car park, $\frac{2}{3}$ of the cars are red.

$\frac{1}{5}$ of the cars are blue.

What fraction of the cars are red or blue?

Question 2: This week Harry spent $\frac{1}{2}$ of his pocket money on a ticket for a football match.

He also spent $\frac{1}{8}$ of his pocket money on a scarf at the match.

(a) What fraction of his pocket money has Harry spent?

(b) What fraction of his pocket money does Harry have left?

Question 3: On an airplane, the passengers may have chicken, vegetable or tomato soup.
Half of the passengers choose chicken soup
A third of the passengers choose tomato soup.

(a) What fraction of the passengers choose vegetable soup?

There are 240 passengers on the airplane.

(b) How many passengers choose vegetable soup?

Question 4: Patrick has a bag of sugar that contains $\frac{5}{6}$ kg

He uses $\frac{3}{5}$ kg of sugar to make a cake.

How much sugar does Patrick have left?

Question 5: Work out $\frac{1}{6} + \frac{1}{2} + \frac{2}{9}$

Question 6: Jasmine has a bottle that contains $\frac{7}{10}$ litre of orange juice.

She pours out some orange juice and now has $\frac{1}{4}$ litre left.

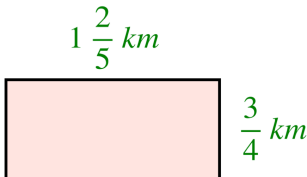How much orange juice did Jasmine pour out?

Question 7: In school, pupils study one language.
They choose either French, Spanish or Italian.

$\frac{3}{20}$ of the pupils study Italian and $\frac{5}{8}$ of the pupils study French

What fraction of the pupils study Spanish?

Question 8: Shown below is a "magic square"
Each column, row and diagonal has the same total.
Work out the missing fractions.

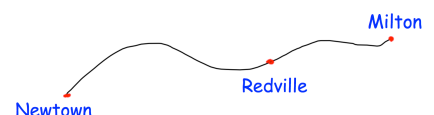| $\frac{1}{10}$		$\frac{3}{10}$
$\frac{9}{20}$		
$\frac{1}{5}$	$\frac{3}{20}$	

Question 9: Lenny says $\frac{7}{11} + \frac{2}{3} = \frac{9}{14}$

Explain what he has done incorrectly and work out the correct answer.

Question 10: Work out the perimeter of this rectangle.

$1\frac{2}{5}$ km

$\frac{3}{4}$ km

Question 11: The distance from Newtown to Milton is $7\frac{2}{3}$ miles.

The distance from Milton to Redville is $2\frac{2}{5}$ miles

Milton

Redville

Newtown

Work out the distance from Newtown to Redville.

Answers

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