St Andrew's Academy

Mathematics Department

COURSE 1 BLOCK 1

PRE-ASSESSMENT
LEARNING EVALUATION

COURSE 1 BLOCK 1 **LEARNING EVALUATION**

	Red	Amber	Green	Revision Exercise
NUMBER				
○ I can state the place value of a number, e.g. Which value does the underlined number represent: a) 56 4̲43 ⟶ 400 or 4 hundred b) 0.6̲82 ⟶ $\frac{6}{10}$ or 6 thenths	◯	◯	◯	• Number Exercise 1 Q1
○ I can write a number in words, e.g. 23 871 – **twenty-three thousand, eight hundred and seventy-one.**	◯	◯	◯	• Number Exercise 1 Q2
○ I can write a number given in words as digits, e.g. four hundred and sixty thousand, two hundred and three – **460 203**	◯	◯	◯	• Number Exercise 1 Q3
○ I can order numbers depending on value, e.g Write the following numbers in order from largest to smallest: 65, 72, 53, 84, 90 **Answer – 90, 84, 72, 65, 53**	◯	◯	◯	• Number Exercise 1 Q4
○ I can add and subtract up to 5-digit numbers, e.g. a) 76254 + 4117 = 80371 (1 1) b) 6 7 9 15 11 4 − 4 8 9 = 6 5 7 5	◯	◯	◯	• Number Exercise 2
○ I can multiply and divide up to 5-digit numbers by a single digit, e.g. a) 6788 x 5 = 3540 (3 4) b) 3 ⟌ 3 7 14 27 = 1 2 4 9	◯	◯	◯	• Number Exercise 3

COURSE 1 BLOCK 1 **LEARNING EVALUATION**

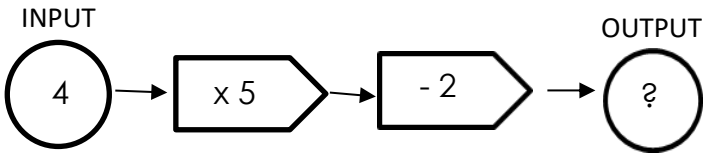
○ I can multiply any number by a number which has two or more digits (long multiplication) e.g. a) 27 x 56 b) 19 x 523 50 | 6 20 | 1000 | 120 7 | 350 | 42 1000 120 350 + 42 1512 1 500 | 20 | 3 10 | 5000 | 200 | 30 9 | 4500 | 180 | 27 5000 4500 200 180 30 + 27 9937	◯	◯	◯	• Number Exercise 4
○ I can multiply a number by 10, 100 and 1000 e.g. **Whole Numbers** a) 45 x 10 = 450 b) 870 x 100 = 87000 c) 74 x 1000 = 74000 **Decimals** a) 9.23 x 10 = 92.3 b) 0.367 x 100 = 36.7 c) 1.2 x 1000 = 1200	◯	◯	◯	• Number Exercise 5
○ I can divide a number by 10, 100 and 1000 e.g. **Whole Numbers** a) 750 ÷ 10 = 75 b) 26000 ÷ 100 = 260 c) 97000 ÷ 1000 = 97 **Decimals** d) 14.8 ÷ 10 = 1.48 e) 0.62 ÷ 100 = 0.0062 f) 5900 ÷ 1000 = 5.9	◯	◯	◯	• Number Exercise 6
○ I can multiply a number by a multiple of 10, 100 and 1000, e.g a) 47 x 30 = 47 x 10 x 3 = 470 x 3 = 1410 b) 29 x 500 = 29 x 100 x 5 = 2900 x 5 = 14500 c) 198 x 2000 = 198 x 1000 x 2 = 198000 x 2 = 396000 d) 5.6 x 400 = 5.6 x 100 x 4 = 560 x 4 = 2240	◯	◯	◯	• Number Exercise 7

COURSE 1 BLOCK 1 **LEARNING EVALUATION**

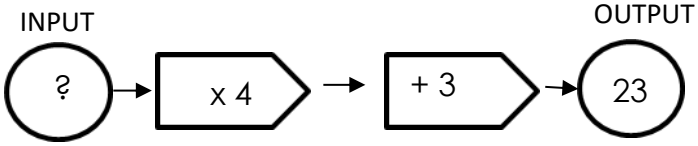
○ I can divide a number by a multiple of 10, 100 and 1000, e.g a) 5400 ÷ 60 = 5400 ÷ 10 ÷ 6 = 540 ÷ 6 = 90 b) 2800 ÷ 700 = 2800 ÷ 100 ÷ 7 = 28 ÷ 7 = 4 c) 320000 ÷ 8000 = 320000 ÷ 1000 ÷ 8 = 320 ÷ 8 = 40 d) 420 ÷ 700 = 420 ÷ 100 ÷ 7 = 4.20 ÷ 7 = 0.60	◯	◯	◯	• Number Exercise 8
○ I understand and complete calculations in the necessary order. **B** Brackets **O** of **D** divide **M** multiply **A** add **S** subtract	◯	◯	◯	• Number Exercise 9
○ I can apply the rules regarding order of operations to carry out calculations: e.g. a) 3 + 5 x 2 = 3 + 10 = 13 b) 17 – 12 ÷ 4 = 17 - 3 = 14	◯	◯	◯	• Number Exercise 9 Q1
c) 6 x (9 – 5) = 6 x 4 = 24 d) (21 + 7) ÷ (6 – 2) = 28 ÷ 4 = 7	◯	◯	◯	• Number Exercise 9 Q1
e) 20 - $\frac{1}{2}$ of 8 = 20 – 4 = 16 f) 3 x 9 + 2^2 - 14 = 27 + 4 - 14 = 31 – 14 = 17	◯	◯	◯	• Number Exercise 9 Q1
○ I can insert a mathematical symbol or brackets to make a calculation correct e.g. a) Insert +, -, x or ÷, to make the calculation true: 5 3 4 = 17 **Answer:** 5 + 3 x 4 = 17	◯	◯	◯	• Number Exercise 9 Q2
b) Insert brackets to make the calculation correct: 6 + 5 x 3 = 33 **Answer**: (6 + 5) x 3 = 33	◯	◯	◯	• Number Exercise 9 Q3

COURSE 1 BLOCK 1 **LEARNING EVALUATION**

	Red	Amber	Green	Revision Exercise
ALGEBRA				
○ I can use number machines to gain an output when I know the input e.g.	○	○	○	• Algebra Exercise 1 Q1
○ I can use machines to gain an input when I know the output by going in reverse e.g.	○	○	○	• Algebra Exercise 1 Q2
○ I can solve basic equations using the balance method, e.g.	○	○	○	• Algebra Exercise 2 Q1
	○	○	○	• Algebra Exercise 2 Q2



Answer: 4 x 5 = 20 – 2 = 18



Answer: 23 – 3 = 20 ÷ 4 = 5

Solve:

a) $x + 4 = 11$ (−4, −4) → $x = 7$

b) $y - 2 = 10$ (+2, +2) → $y = 12$

c) $8x = 32$ (÷8, ÷8) → $x = 4$

d) $\frac{1}{2}b = 5$ (×2, ×2) → $b = 10$

COURSE 1 BLOCK 1 **LEARNING EVALUATION**

○ I can solve equations using the balance method, when there is two steps to the process, e.g Solve: a) $2x + 3 = 9$ (−3, −3) → $2x = 6$ (÷2, ÷2) → $x = 3$ b) $6x - 8 = 46$ (+8, +8) → $6x = 54$ (÷6, ÷6) → $x = 9$	○	○	○	• Algebra Exercise 3 Q1
c) $4y - 2 = 8$ (+2, +2) → $4y = 10$ (÷4, ÷4) → $y = 2.5$ or $2\frac{1}{2}$ d) $\frac{1}{4}m + 3 = 7$ (−3, −3) → $\frac{1}{4}m = 4$ (×4, ×4) → $m = 16$	○	○	○	• Algebra Exercise 3 Q2
○ I can form equations when given a worded problem, e.g. **Problem:** I think of a number. I multiply by 5 then add 7. My answer is 22. Form an equation and solve it to find my number. **Answer:** $5x + 7 = 22$ (−7, −7) → $5x = 15$ (÷5, ÷5) → $x = 3$	○	○	○	• Algebra Exercise 4

COURSE 1 BLOCK 1 **LEARNING EVALUATION**

	Red	Amber	Green	Revision Exercise
INTEGERS				
○ I can use non-calculator strategies to perform calculations using the four operations.	○	○	○	
○ I can confidently use the negative number line and answer problems in context.	○	○	○	• Integer Exercise 1
○ I can add and subtract with negative numbers: e.g. a) -5 + 4 = -1 b) 3 – 7 = -4 c) 3 + (-2) = 1 d) 5 – (-2) = 7 e) (-4) + (-8) = -12 e) (-1) – (-9) = 8	○	○	○	• Integer Exercise 2
○ I can multiply positive and negative numbers together: e.g. a) (-6) x 5 = -30 b) (-2) x (-7) = 14	○	○	○	• Integer Exercise 3
○ I can divide positive and negative numbers together: e.g. a) (-16) ÷ 8 = -2 b) (-12) ÷ (-3) = 4	○	○	○	• Integer Exercise 3 **Extra Practice on mixed questions Exercise 4 and 5**

COURSE 1 BLOCK 1 **REVISION**

NUMBER REVISION

Exercise 1

1. State the place value of each of the underlined numbers:
   a) 5<u>2</u>4 b) <u>7</u>251 c) 9<u>2</u> d) 26 <u>2</u>88 e) 1.7<u>3</u> f) 376.<u>4</u>

   g) <u>8</u>27 382 h) 0.46<u>3</u>5 i) 6<u>5</u>5 012 j) 90 2<u>6</u>7 k) 0.032<u>9</u> l) <u>4</u> 367 206

2. Write the following numbers in words:
   a) 82 b) 743 c) 206 d) 3225 e) 1900 f) 46 800

   g) 61 504 h) 520 090 i) 120 773 j) 7 500 004 k) 10 650 201

3. Write the following numbers as digits:
   a) Seventy-six b) eight hundred and thirty c) nine thousand and twelve

   d) fourteen thousand two hundred and fifty-seven

   e) five hundred and six thousand and sixty-three

   f) three million, five hundred and seventy thousand, eight hundred and forty.

4. Put the following numbers in order from smallest to largest:
   a) 6, 8, 7, 2, 3, 5, 9 b) 35, 38, 29, 27 , 30, 31 c) 204, 199, 201, 197, 210, 208

   d) 0.6, 0.2, 0.25, 0.5, 0.45 e) 8765. 7872, 8500, 7945, 8037, 8410

Exercise 2

1. Complete the following calculations:
   a) 67 + 18 b) 367 + 25 c) 628 + 272 d) 456 + 198 e) 1604 + 876

   f) 4528 + 3637 g) 32067 + 12305 h) 74 – 26 i) 987 – 430 j) 149 – 82

   k) 6099 – 3655 l) 2096 – 924 m) 6430 – 2907 n) 43 807 – 19 765

2. At a local football match, there were 6281 Rovers supporters and 5098 Morton supporters who attended the Saturday match. How many supporters were there altogether?

3. At a five-direction concert there were 12306 fans who attended one Friday night. 594 had to leave early to catch the last train. How many fans were left at the end of the concert?

4. Sam and Matt travelled 325 miles from London to Gretna, 88 miles from Gretna to Edinburgh and 129 miles from Edinburgh to Aviemore. How many miles did they travel altogether?

5. The Smith family saved up £2000. They spent £450 on a new laptop, £625 on a TV and £375 on a games console. How much money do they have left?

Exercise 3

1. Complete the following calculations:
   a) 563 x 4 b) 78 x 9 c) 902 x 8 d) 1267 x 5 e) 4076 x 6 f) 23 487 x 3

   g) 336 ÷ 8 h) 657 ÷ 9 i)1348 ÷ 2 j) 6628 ÷ 4 k) 24948 ÷ 7 l) 42345 ÷ 5

2. Casey collects football cards and has an impressive 189. His friend Steven says he has treble the number of cards that Casey has. How many football cards does Steven have?

3. A small lorry is carrying seven crates. Each crate weighs 1096kg. The maximum the lorry can carry is 8000kg.

   Can the lorry carry the crates safely? Explain your answer.

4. The Jackson family won £9000 on the Lotto. If there are six members in the family, how much money will each person get?

5. Sophie bought eight cinema tickets for her friends. The total cost was £60. How much money does each person owe Sophie for their ticket?

6. Chris is paying up his tablet over 9 months. If the tablet cost £495, how much will Chris need to pay each month?

Exercise 4

1. Complete the following calculations:
   a) 26 x 19 b) 43 x 37 c) 54 x 16 d) 87 x 39 e) 61 x 45

   f) 173 x 27 g) 654 x 18 h) 755 x 38 i) 468 x 63 j) 901 x 52

2. The cost of a holidays to Spain is £328 per person. A large group of 12 friends are going on the holiday together. What is the total cost of the holiday?

3. The weight of one large chocolate bar is 95grams. What is the weight of a box of 42 bars?

Exercise 5

1. Complete the following calculations:
   a) 76 x 10 b) 82 x 100 c) 3.5 x 10 d) 0.16 x 10 e) 68 x 100

   f) 184 x 100 g) 8.32 x 100 h) 7422 x 10 i) 1.45 x 100 j) 56 x 1000

   k) 91 x 1000 l) 657 x 1000 m) 4538 x 10 n) 0.577 x 1000 o) 27.8 x 1000

Exercise 6

1. Complete the following calculations:

a) 560 ÷ 100	b) 3200 ÷ 10	c) 45000 ÷ 100	d) 48 ÷ 10	e) 6700 ÷ 100
f) 230 ÷ 100	g) 170000 ÷ 100	h) 75000 ÷ 1000	i) 0.64 ÷ 10	j) 13000 ÷ 1000
k) 4600 ÷ 1000	l) 3 million ÷ 1000	m) 190 ÷ 100	n) 26 ÷ 1000	o) 8.5 ÷ 1000

Exercise 7

1. Complete the following calculations:

a) 32 x 50	b) 656 x 20	c) 29 x 5000	d) 600 x 8	e) 4000 x 5123
f) 2345 x 300	g) 4.7 x 500	h) 18 x 6000	i) 5.2 x 90	j) 622 x 700
k) 0.38 x 200	l) 981 x 3000	m) 17.4 x 80	n) 25.6 x 800	o) 6754 x 9000

2. A jar contains 567 sweets. How many sweets are in 60 jars?

3. A coach can seat 65 passengers. How many passengers will fit into 30 coaches?

4. A warehouse is selling off £400 washing machines. How much will they make if they sell 215 machines?

5. There are 12 pencils in a box. A school orders 5000 boxes. How many pencils does the school now have?

Exercise 8

1. Complete the following calculations:

a) 150 ÷ 30	b) 2400 ÷ 60	c) 8100 ÷ 900	d) 42000 ÷ 700
e) 32000 ÷ 4000	f) 4 500 000 ÷ 5000	g) 32000 ÷ 8000	h) 2070 ÷ 900
i) 256 ÷ 20	j) 28800 ÷ 3000	k) 2.7million ÷ 9000	l) 240 ÷ 600

2. The 300 workers in a supermarket do the lottery and win the jackpot of £2 700 000. How much money should each person receive?
3. A school orders 3500 rubbers. If there were 70 boxes in the delivery, how many rubbers were in each box?
4. A factory has made a batch of 7 200 000 sweets. They have 800 jars ready to fill equally. How many sweets will they be able to put in each jar?
5. A university need to split 240 000 students into 2000 study groups. How many students will be in each group?

Exercise 9

1. Evaluate:

a) $7 + 6 \times 5$ b) $7 - (6 - 2)$ c) $24 \div 6 + 5$ d) $7 \times 6 + 8 \times 2$

e) $10 \div 5 + 8 \div 2$ f) $(5 - 2) \times 7 + 9$ g) $60 \div (5 + 7)$ h) $60 \div 5 + 7$

i) $4 \times 3 + 2$ j) $4 \times (3 + 2)$ k) $12 \times (20 - 2) \div 9$ l) $36 \div (5 + 4)$

m) $4 \times 12 \div 8 - 6$ n) $\frac{15}{18-3} + 4$ o) $\frac{22-4}{9} + 12 \div 3$ p) $30 - (16 - 12)^2$

q) $7 \times 6 - 3^2 + 15 \div 5$ r) $(9 + 2) \times (17 - 5)$ s) $56 \div 2^3 - 4$

t) $10 + \frac{2}{3}$ of $39 - 12$ u) $(7 + 4) \times (8 - 5)$ v) $(23 - 5) \div 9$

w) $3 + 7 \times 2$ x) $13 - 12 \div 6$ y) $4 \times 3^2 + 8$

2. Choose from the four signs +, -, x, and ÷ to make these sums correct.

a. 5 6 7 = 37 b) 5 6 7 = 47
c) 15 8 9 = 87 d) 15 8 9 = 129
e) 15 8 9 = 111 f) 15 5 3 = 6
g) 5 24 6 = 1 h) 19 19 7 = 8
i) 4 4 7 2 = 30

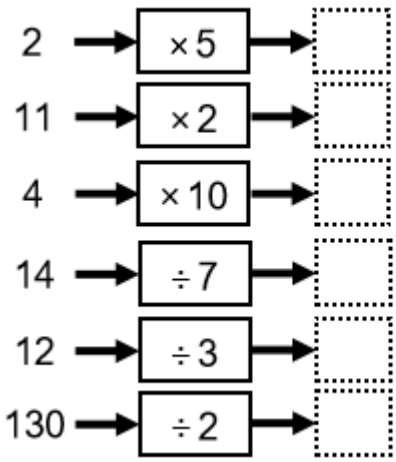
3. Some of these need brackets to make them correct, copy them out and place in the brackets if and where needed:

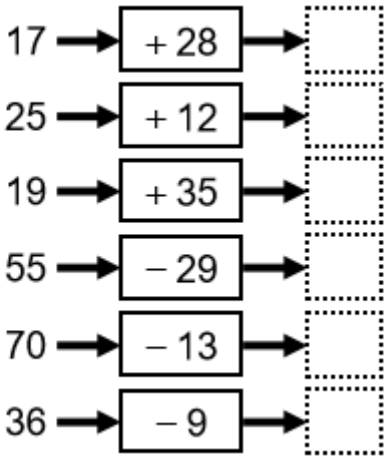
a) $2 \times 3 + 7 = 20$ b) $13 - 2 \times 5 = 55$ c) $7 - 4 - 1 = 4$ d) $36 \div 2 \times 3 + 4 = 10$

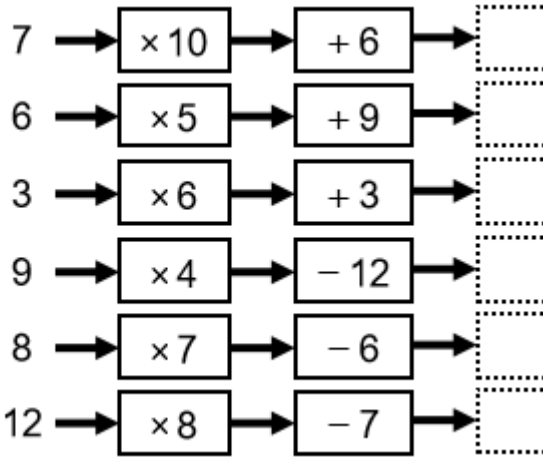
ALGEBRA REVISION

Exercise 1

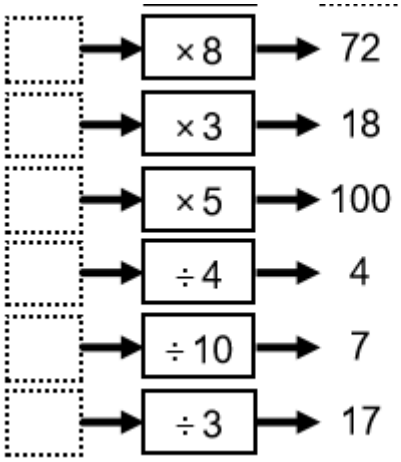
1. For each of the following function machines, find the output:

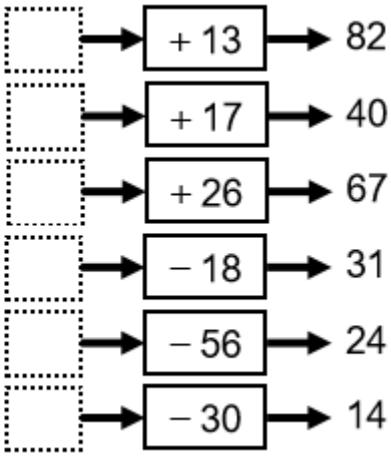


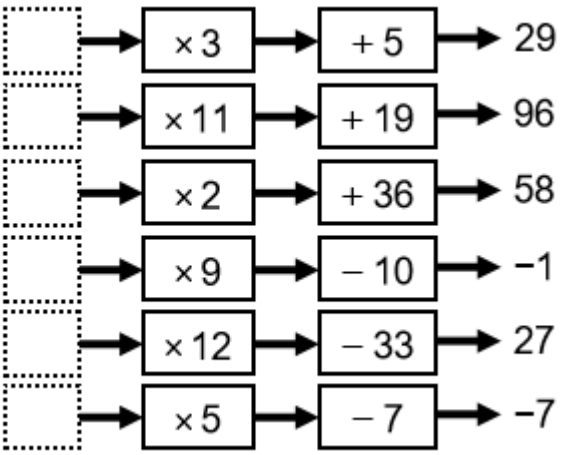




2. For each of the following function machines, find the input:







Exercise 2

1. Solve the following equations:

a) $x + 3 = 8$ b) $y - 7 = 12$ c) $g - 6 = 4$ d) $e + 13 = 20$ e) $19 + p = 23$

f) $x + 5 = 17$ g) $20 + a = 32$ h) $k - 9 = 11$ i) $14 = y - 8$ j) $21 = h + 15$

2. Solve the following equations:

a) $7x = 28$ b) $3y = 15$ c) $8p = 32$ d) $9y = 63$ e) $21 = 7m$

f) $5g = 45$ g) $42 = 6f$ h) $\frac{1}{2}x = 4$ i) $\frac{1}{4}y = 3$ j) $\frac{1}{3}d = 8$

Exercise 3

1. Solve the following equations:

a) $2x - 1 = 9$ b) $3x + 5 = 23$ c) $4y + 7 = 35$ d) $5d - 6 = 24$ e) $8b - 13 = 11$

f) $7x + 4 = 60$ g) $6y - 20 = 34$ h) $15 = 2x - 3$ i) $12y + 7 = 43$ j) $9f - 8 = 28$

2. Solve the following equations:

a) $2x - 6 = 3$ b) $4x + 3 = 13$ c) $6h + 7 = 16$ d) $8y - 4 = 16$

e) $\frac{1}{2}x + 3 = 7$ f) $\frac{1}{3}y - 8 = 2$ g) $\frac{1}{5}c - 6 = 7$ h) $\frac{1}{7}k + 5 = 13$

Exercise 4

1. For each question you need to **write out an equation** and **solve it using the methods you've learnt:**

a) I think of a number. I multiply it by 6 and add 3. If my answer is 75, calculate the number I started with.

b) I think of a number. If I multiply it by 5 and divide by 8 I get my answer 10. Form an equation and work out what number was I thinking off.

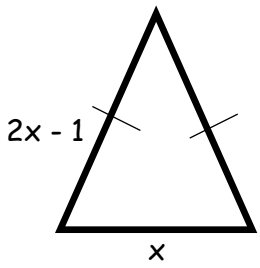
c) John is x years old. Ahmad is 3 years older than John. The total of their age is 63 years. Form and equation and work out the age of Ahmad.

d) Ahmad is twice as old as Bobby. John is 7 years younger than Ahmad. If the sum of their age is 38, how old are the three boys?

e) The perimeter of the rectangle below is 42cm. Calculate the lengths of the sides by forming an equation and solving it.

f) A garden measures p metres by 3p + 2 metres.
   i) Write an expression that describes the perimeter of the garden.
   ii) The garden has a perimeter of 76 metres. Write an equation to show this.
   iii) Solve your equation to find the value of p.

g) The triangle to the right is Isosceles.
Calculate the lengths of the sides if the perimeter is 68cm.

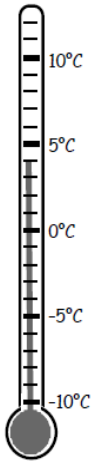


INTEGER REVISION

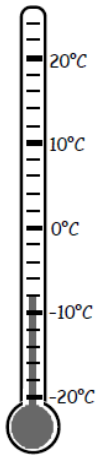
Exercise 1

1. Read the following thermometers and state the temperature:

b)



a)



2. Put these temperatures in order, the lowest first.
   2^0C, -8^0C, -1^0C, -6^0C, -4^0C

3. Which of these temperatures is lowest?
   i) -4^0C or -2^0C ii) -16^0C or -17^0C

4. The temperature in Paisley one day in December was 6^0C. The temperature fell by 8 degrees by 1am. What is the temperature now?

5. What is the difference in temperature between -4^0C and 14^0C?

6. What number is 10 up from -37.
7. What number is 8 down from -23.
8. The temperature in Moscow was -12°C at 4am. By 2pm the temperature had risen by 7°. What was the temperature at 2pm?
9. The temperature in Russia one afternoon was -7°C. By night fall the temperature had fallen by 11°. What was the temperature at night fall?

Exercise 2

1. State which of following statements are true or false.
   a) $8 > 3$ b) $-2 < 5$ c) $0 < -1$ d) $-9 > -4$

2. Complete the following calculations:
   a) $2 - 7$ b) $(-3) + 8$ c) $(-5) - 9$ d) $12 - 20$

   e) $(-18) + 6$ f) $(-13) + 7$ g) $3 + (-10)$ h) $10 + (-4)$

   i) $0 + (-18)$ j) $(-6) + (-8)$ k) $(-2) + (-16)$ l) $(-19) + (-20)$

3. Complete the following calculations:

a) 4 – 18 b) (-6) – 15 c) 7 – (-10) d) 0 – (-19)

e) (-8) – (-3) f) (-17) – (-5) g) (-2) – (-11) h) (-39) – (-20)

i) (-6) – (-4) j) (-10) – (-9) k) (-20) – (-15) l) (-50) – (-30)

Exercise 3

Complete the following calculations:

a) 35 ÷ (-7) b) (-2) x 9 c) (-30) ÷ 5 d) (-9) x (-8)

e) 7 x (-4) f) (-12) x 5 h) (-54) ÷ (-9) i) (-48) ÷ 6

k) (-8) x (-4) l) 7 x (-13) m) (-100) ÷ (-20) n) 50 ÷ (-2)

Exercise 4

1. Complete the following calculations:

a) 7 – 19 b) (-5) + 12 c) (-4) x 8 d) 1 + (-16)

e) (-8) + (-15) f) (-9) – (-14) g) (-63) ÷ 9 h) (-28) – (-10)

i) (-14) x (-6) = j) (-8) – 13 k) (-15) + (-12) l) 120 ÷ (-2)

m) (-49) ÷ 7 n) (-17) – (-21) o) 2 + (-14) p) (-6) x 5

q) 7 – (-10) r) 32 ÷ (-8) s) (-4) + (-9) t) (-1) – (-17)

u) 13 x (-4) v) (-66) ÷ (-11) w) (-18) – (-12) x) 5 + (-16)

y) (-9) x (-7) z) (-2) + (-11)

Exercise 5

Complete the following calculations:

1. (-7) + 8 2. 3 – 10 3. 4 + (-18)

4. (-9) x 6 5. 6 – (-17) 6. (-3) – (-5)

7. 63 ÷ (-7) 8. (-4) x (-8) 9. (-25) – (-12)

10. 2 + (-19) 11. (-54) ÷ 6 12. (-10) + (-36)

13. 5 x (-13) 14. (-42) ÷ (-7) 15. (-50) – (-28)