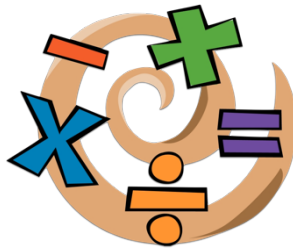




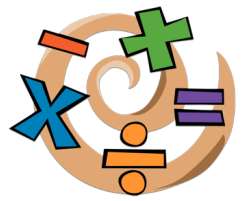
St Andrew's Academy


Mathematics Department



COURSE 2 BLOCK 9

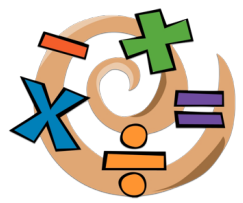
***PRE-ASSESSMENT
LEARNING EVALUATION***



	Red	Amber	Green	Revision Exercise
NUMBER				
<p>○ Be able to write down a ratio based on a picture to represent a ratio: e.g.</p>  <p style="text-align: center;">Spoons : forks 7 : 4</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	• Number Exercise 1
<p>○ Be able to simplify a ratio to its simplest form e.g. $14 : 21$ $\div 7 \quad \div 7$ $2 : 3$</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	• Number Exercise 2 Q1
<p>○ Be able to create equivalent ratios: e.g. $4 : 3$ $\times 3 \quad \times 3$ $12 : 9$</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	• Number Exercise 2 Q2
<p>○ Be able to perform calculations involving ratio: e.g. <u>Question:</u> In a classroom the ration of boys to girls is $2 : 3$. If there are 8 boys in the class, how many girls are there? <u>Answer:</u></p> <p style="text-align: center;">Boys : Girls $\times 4 \quad 2 : 3 \quad \times 4$ $8 : 12$</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	• Number Exercise 3



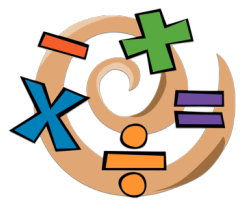
BLOCK 9 LEARNING EVALUATION



<p>○ Be able to use ratio to share an amount: e.g <u>Question:</u> Bob and Scott have been left money by a relative in their will. The sum of £400 has to be shared on a ratio of 2 : 3 (Bob : Scott). How much money will each person receive?</p> <p><u>Answer:</u> Ratio - 2 : 3 = 2 parts add 3 parts = 5 parts 1 part = $£400 \div 5 = £80$ Bob = 2 parts = $2 \times £80 = £160$ Scott = 3 parts = $3 \times £80 = £240$</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<ul style="list-style-type: none">• Number Exercise 4
<p>○ Be able to use proportional division to find the cost of one item then several items (Direct Proportion) e.g. a) 7 chocolate bars cost £6.30, what is the cost of 1 chocolate bar?</p> <p>1 chocolate bar = $£6.30 \div 7 = £0.90$</p> <p>b) 4 cans tomatoes weigh cost 1600grams. What do 7 cans of tomatoes weigh?</p> <p>1 can weighs = $1600g \div 4 = 400$ grams 7 cans weigh = $7 \times 400 = 2800$ grams</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<ul style="list-style-type: none">• Number Exercise 5



BLOCK 9 LEARNING EVALUATION



Red	Amber	Green	Revision Exercise
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ALGEBRA

- I understand the meaning of the word gradient.
- I can work out the gradient of a line using two coordinates with the formula $m = \frac{y_2 - y_1}{x_2 - x_1}$, where (x_1, y_1) and (x_2, y_2) are points on the line.
- I understand a horizontal line has no slope therefore that the gradient is zero ($m = 0$)
- I understand a Vertical line has a gradient that is undefined ($m = \text{undefined}$)
- Be able to sketch a straight line when given the equation by making up a table of values to find coordinates to plot:
e.g. $y = 2x + 1$

x	0	1	2	3
y	1	3	5	7

Working:

$y = 2x + 1$

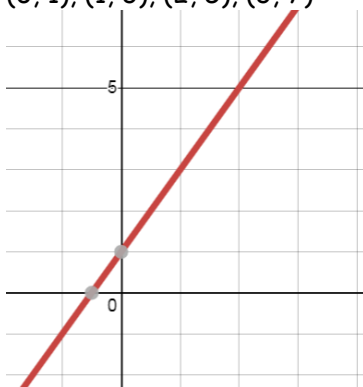
$y = 2 \times 0 + 1 = 1$

$y = 2 \times 1 + 1 = 3$

$y = 2 \times 2 + 1 = 5$

$y = 2 \times 3 + 1 = 7$

- Be able to plot the coordinates from the table and draw the graph of the straight line. $(0, 1), (1, 3), (2, 5), (3, 7)$

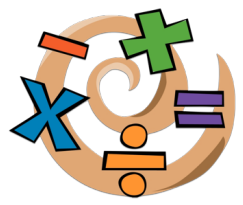


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- Algebra Exercise 1
- Algebra Exercise 2
- Algebra Exercise 2



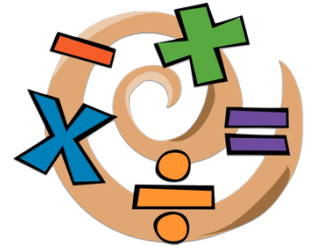
BLOCK 9 LEARNING EVALUATION



	Red	Amber	Green	Revision Exercise
Probability				
<ul style="list-style-type: none">Be able to state the likelihood of an event happening. <p style="text-align: center;"> ----- ----- ----- ----- ----- Impossible Unlikely Evens Likely Certain</p> <ul style="list-style-type: none">Be able to write the chances of an event happening in a fraction. e.g. <p>Probability of event = $\frac{\text{Number of desirable outcomes}}{\text{Number of total possible outcomes}}$</p> <p>Question: What are the chances of getting an even number on a dice?</p> <p>Answer: $\frac{3}{6} = \frac{1}{2}$</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<ul style="list-style-type: none">Probability Exercise 1
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<ul style="list-style-type: none">Probability Exercise 2



BLOCK 9 REVISION



NUMBER REVISION

Exercise 1

1. Write down a ratio to match the following pictures:

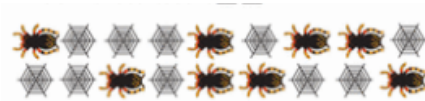
a) Books : Pens



b) Squares : Stars



c) Spiders : Webs



d) Pigs : Foxes



Exercise 2

1. Write these ratios in their simplest form:

a) $3 : 6$

b) $15 : 5$

c) $12 : 36$

d) $16 : 56$

e) $20 : 44$

f) $18 : 81$

g) $5 : 10$

h) $12 : 18$

i) $26 : 52$

j) $21 : 28$

k) $15 : 55$

l) $24 : 56$

2. Fill in the blanks to find the equivalent ratios:

- | | |
|----------------------------|--------------------------|
| a) $3 : 6 = 6 : \dots$ | b) $\dots : 5 = 30 : 10$ |
| c) $18 : 4 = \dots : 2$ | d) $3 : 5 = 15 : \dots$ |
| e) $1 : 6 = \dots : 18$ | f) $5 : 13 = \dots : 26$ |
| g) $5 : \dots = 30 : 6$ | h) $\dots : 9 = 6 : 27$ |
| i) $2 : 17 = 4 : \dots$ | j) $23 : 7 = \dots : 14$ |
| k) $150 : 50 = 15 : \dots$ | l) $7 : \dots = 49 : 70$ |
| m) $\dots : 13 = 30 : 39$ | |

Exercise 3

- Flavoured sweets are sold in Orange and Strawberry flavours in a 2 : 3 ratio.
 - How many strawberry sweets should there be if there were 18 orange sweets.
 - How many orange sweets would there be if there were 81 strawberry sweets.
- Some people recommend that in hospitals a decent ratio of nurses to doctors is 7 : 2.
 - How many doctors would there be for 21 nurses?
 - How many nurses would there be for 26 doctors?
- One evening at the local theatre, the ratio of males to females was 3 : 4. There were 120 men in the theatre. How many women were there?
- In a large crate, the ratio of red apples to green apples is 3 : 5. If there are 84 red apples in the crate, how many green apples are there?
- In a box of chocolates, the ratio of soft : caramel is 2 : 7.
 - If there are 12 soft chocolates, how many caramels will there be?
 - If there are 28 caramels, how many soft chocolates will there be?

Exercise 4

1. Calculate the amount each person should receive when shared in the following ratios:

- a) Share £48 between Alan and Barbara in the ratio 2:1
- b) Share £60 between Laura and Robert in the ratio 1:3
- c) Share 80 marbles between Stuart and Carl in the ratio 4:1
- d) Share 91 sweets between Peter and Becky in the ratio 4:3
- e) Share 70 coloured beads between Janet and Christine in the ratio 3:2
- f) Share £120 between Carly and Paul in the ratio 3:5

2. A carton contains 350ml of milk, which has to be shared between a cat and her kitten in the ratio 4 : 3. How many millilitres of milk will the kitten receive?

3. A bag of sweets contains 240g of sweets. The sweets have to be shared between Alison and Stephen in the ratio 3:5. How much sweets will Stephen receive?

4. Paul is 12 and Gemma is 15. They share a £5400 inheritance from their aunty in the ratio of their ages. How much do they each receive?

5. John scored 15 points and Fiona scored 17 points in a TV quiz show. They shared the prize money of £2720 in the ratio of points scored. How much did they each receive?

6. A piece of wood 2.8m long is cut into 3 pieces in the ratio 4:3:7. Find the length of each piece.

7. A metal alloy block of mass 56kg consists of copper, zinc and tin in the ratio 4:3:1. Find the mass of each metal.

8. Jack, Jenny, Paul and Kate share 270 marbles in the ratio 2:9:4:3. How many does each receive?

Exercise 5

1. The cost of 8 soda cans is £5.60. what is the cost on one soda can?

2. A soldier can march 36 kilometres in 6 hours. Calculate the rate in kilometres per hour.

3. David bought a set of 4 new tyres from Slow-Fit for a total of £96. Tim bought a set of 5 similar tyres from Tyres 'R Us for £110. Who got the better deal?

4. The cost of 7 t-shirts is £84. What would be the cost of 4 t-shirts?

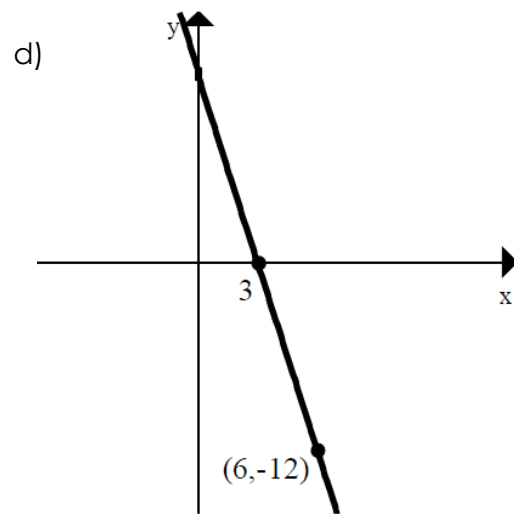
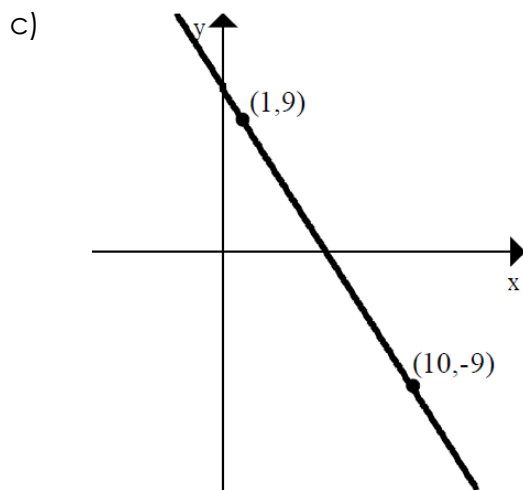
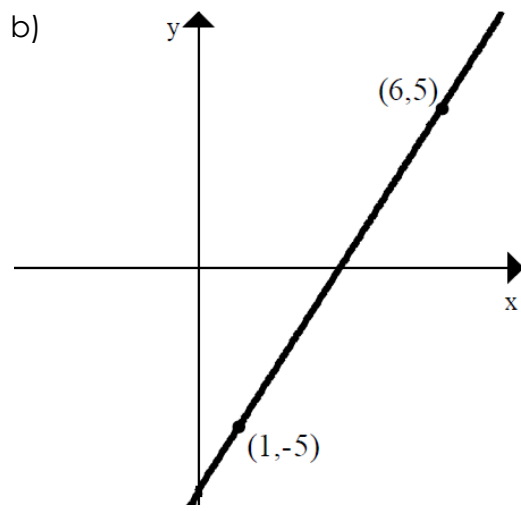
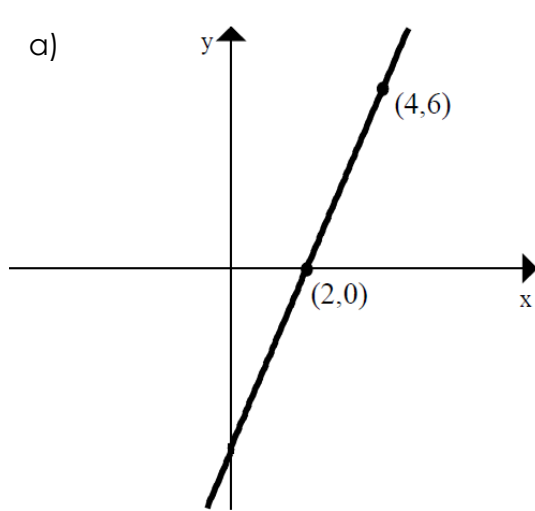
5. David decorates cupcakes. He can decorate 14 cakes in 15 minutes. How many cakes can he decorate in 2 hours?
6. Eight sheets of high gloss photo paper costs £6.48. How much would it cost for 10 sheets?
7. A wheel turns 500 times in 4 minutes. How many turns would it make in 7 minutes?
8. A bricklayer can lay 25 bricks in five minutes.
 - a) How many bricks could he lay in an hour?
 - b) How long would it take to build a wall with 250 bricks?

ALGEBRA REVISION

Exercise 1

1. Calculate the gradient of the following lines going through the points:
 - a) (3, 6) and (5, 8)
 - b) (4, 9) and (7, 15)
 - c) (0, 2) and (4, 18)
 - d) (1, 5) and (3, 19)
 - e) (5, 6) and (3, 10)
 - f) (3, 7) and (6, 8)
 - g) (1, 9) and (5, 12)
 - h) (4, 6) and (7, 0)
 - h) (10, 4) and (15, 14)
 - i) (-3, 6) and (-2, 12)
 - j) (-1, 10) and (5, 13)
 - k) (-4, 2) and (0, 14)
 - l) (-5, 3) and (0, -7)
 - m) (-4, -2) and (1, 3)
 - n) (-12, -11) and (-10, -7)
 - o) (-20, 15) and (-18, 11)
 - p) (6, -3) and (2, -2)
 - q) (-7, -1) and (-15, -4)

2. Calculate the gradient of the following lines going through the points:



Exercise 2

1. For each question below

(a) Copy and complete the table for the given line

(b) Draw the line on a coordinate graph

1. $y = x + 5$

x	3	0	-2
y			

2. $y = x - 3$

x	7	0	-3
y			

3. $y = 2x$

x	5	1	-4
y			

4. $y = 4x$

x	1	0	-2
y			

5. $y = 2x - 5$

x	4	0	-1
y			

6. $y = 3x + 1$

x	3	0	-3
y			

7. $y = 4 + 4x$

x	1	-1	-3
y			

8. $y = 3 - 2x$

x	5	0	-3
y			

9. $y = -x + 5$

x	3	0	-2
y			

10. $y = -x - 4$

x	-2	0	-4
y			

11. $y = -2x$

x	5	0	-4
y			

12. $y = -3x - 1$

x	3	0	-4
y			

13. $y = -4x - 1$

x	2	0	-2
y			

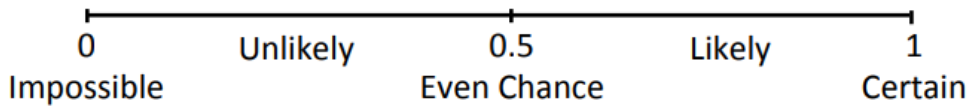
14. $y = -3x + 7$

x	5	0	-1
y			

PROBABILITY REVISION

Exercise 1

1. Copy this probability line and place the events on, be ready to justify (explain) your answers:



- a) Throwing a coin and getting heads.
- b) That it will snow in winter.
- c) You will watch TV today.
- d) You will have homework tonight
- e) You will find a £20 note on the way home.
- f) You will be given pizza for tea today.
- g) You will be picked up from school in a helicopter.
- h) You will become invisible.
- i) Put 5 more events of your own on, one at each space along the line.

Exercise 2

1. A bag contains 40 counters – 15 blue, 6 red, 10 yellow and 9 green. A counter is drawn from the bag at random.
 - (a) What is the probability this counter is (i) blue? (ii) red or yellow?
 - (b) A blue counter is drawn from the bag and not replaced. What is the probability the next counter drawn from the bag is also blue?
2. A bag contains 50 coloured balls – 20 white, 14 purple, 11 pink and 5 orange.
 - (a) A ball is chosen from the bag at random. What is the probability this ball is (i) pink? (ii) white or orange?
 - (b) A white ball is chosen from the bag and not replaced. What is the probability the next ball chosen will be purple?
3. **The table shows the pupils in a small Primary School.**

	Under 10 years old	Over 10 years old
Boy	85	20
Girl	115	30

A pupil is to be chosen at random to represent the school in a local quiz. What is the probability that the pupil chosen is

- (a) A boy?
 - (b) A girl?
 - (c) A girl over 10 years old?
 - (d) A boy under 10 years old?
4. There are 2 yellow, 3 red, 1 blue and 4 orange cubes in a bag.
 - (a) Jason takes a cube from the bag. What is the probability that it is orange?
 - (b) The cube is replaced in the bag and 3 white cubes are added to the bag. What is the probability that the next cube taken from the bag is not red?