Year 6 Maths Home Learning | Summer Term

W.C. 29th June

Maths Answers

Monday

Fluent in 5

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

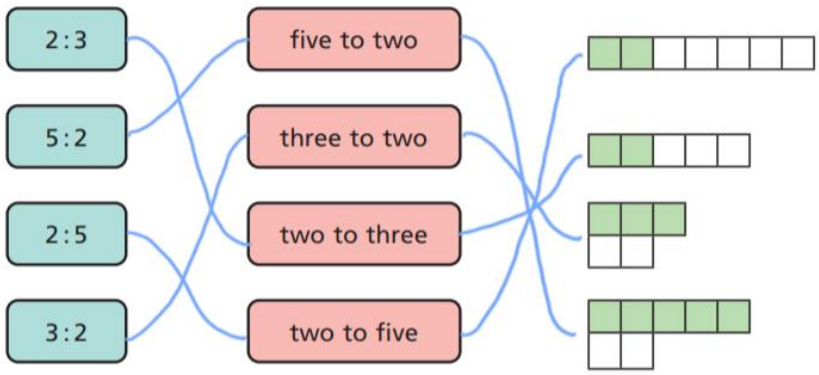
1. 490 ÷ 7 = **70** (M)
2. 675.32 – 138.83 = **536.49** (W)
3. 863 ÷ 21 = **41 r 2** (W)
4. 6 + 3 x 6 = **24** (M)
5. $\frac{1}{3} + \frac{1}{6} = \frac{3}{6}$ *or* $\frac{1}{2}$ (M)
6. 0.6 ÷ 0.2 = **3** (M)

Mild

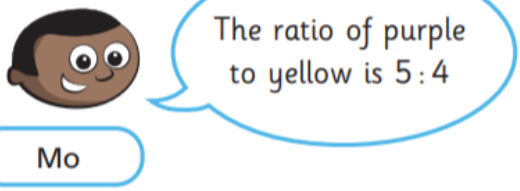
Introducing ratio, including the language and symbol

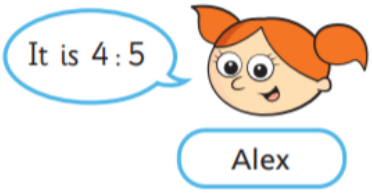
1 The ratios show shaded parts to non-shaded parts.

Match the ratios, statements and bar models.



2





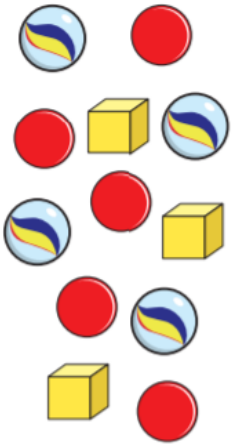
Who is correct? Mo

Explain your answer.

There are 5 purple and 4 yellow.

3 Dani has some counters, cubes and marbles.

Complete the sentences.



The ratio of counters to marbles is 5 : 4

The ratio of marbles to cubes is 4 : 3

The ratio of cubes to counters is 3 : 5

The ratio of counters to cubes is 5 : 3

The ratio of counters to cubes to marbles is 5 : 3 : 4

False; it is 3:4.

A: picture 3; B: picture 1; C: picture 2.

5:2 is the odd one out.

No because the ratio of pears to oranges would be 4:1.

Yes because the ratio of boys to girls would be 3:2.

Rishon is describing the ratio of triangles to pentagons. Riva is describing the ratio of pentagons to triangles.

Various answers, for example: 1:9, 2:8, 3:7, 4:6

Medium

False; it is 3:4.

False; it is 4:2.

A: 1; B: 2; C: 3.

A: 3; B: 2; C: 1.

3:2:1 is the odd one out.

3:4:1 is the odd one out.

Brett has drawn some triangles and squares.

The ratio of triangles to squares is 1 : 3

a) Are there more triangles or more squares? Squares

Explain how you know.

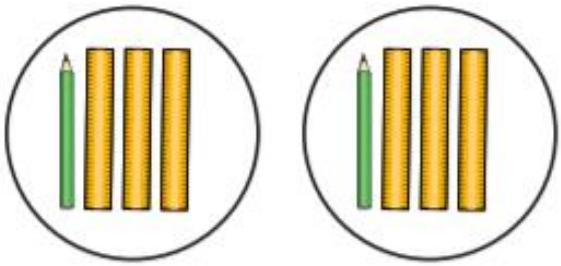
For every 1 triangle there are 3 squares.

b) Brett has drawn more than 10 shapes.

Draw what Brett might have drawn.

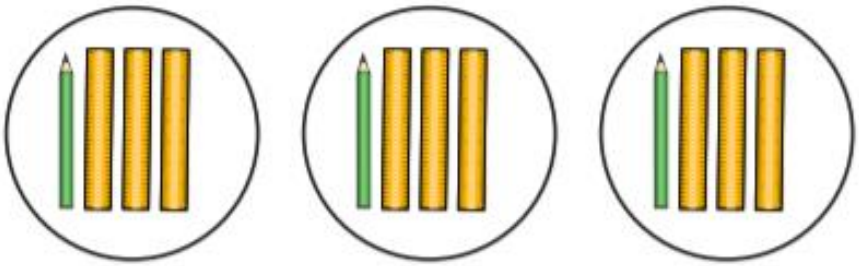
e.g.

Here are some rulers and some pencils.



a) What is the ratio of pencils to rulers? 1 : 3

b) Here are some more rulers and pencils.



The ratio of pencils to rulers is the same as in part a).

Ron

Ron is wrong because there are more pencils and more rulers.

Dora

Who is correct? Ron

Explain your answer.

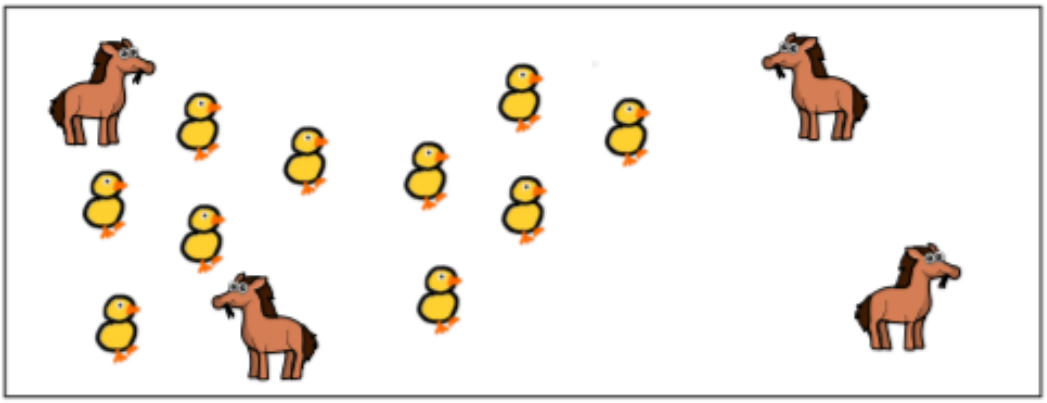
There are still 3 rulers for every 1 pencil.

Yes because the ratio of apples to oranges to pears would be 3:2:4.

Spicy

The ratio of horses to chickens in a field is 2:5

Here are the horses. Draw the chickens.



False; it is 1:2:3.

True

A: 2; B: 3; C: 1.

A: 3; B: 1; C: 2.

2:3:1 is the odd one out.

Shade squares so that the ratio of shaded to non-shaded squares is 1:4

a) 

b) 

c) 

A box contains dark, white and milk chocolates.

$\frac{3}{8}$ of the box are dark chocolates.

$\frac{1}{2}$ of the box are milk chocolates.

The rest are white chocolates.

What does each ratio represent?

a) 1 : 3

white to dark

b) 4 : 1

milk to white

c) 3 : 5

dark to not dark

Yes because the ratio of pencils to rubbers to rulers would be 3:2:1.

Cole is describing the ratio of rectangles to triangles. Elise is describing the proportion of shapes that are rectangles.

Rio is describing the ratio of hexagons to triangles. Mave is describing the proportion of the shapes that are triangles.

Various answers, for example: 9:20:1, 9:19:2, 9:18:3

Tuesday

Fluent in 5

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $1.2 \div 0.3 =$ **4** (M)
2. $64 + 130 =$ **194** (M)
3. $6 \times 3 - 2 \times 5 =$ **8** (M)
4. $874.93 - 384.28 =$ **490.65** (W)
5. $5{,}432 \div 23 =$ **236 r 5** (W)
6. $\frac{3}{4} - \frac{1}{8} = \frac{\mathbf{5}}{\mathbf{8}}$ (M)

Represent and calculate ratio

Mild

a.	1:2	2:4	3:6	4:8	5:10	6:12
b.	1:3	2:6	3:9	4:12	5:15	6:18
c.	2:5	4:10	6:15	8:20	10:25	12:30
d.	3:7	6:14	9:21	12:28	15:35	18:42
e.	4:11	8:22	12:33	16:44	20:55	24:66
f.	5:7	10:14	15:21	20:28	25:35	30:42

1 Eva is baking cakes and cookies.

For every 1 cake, she will bake 2 cookies.

a) If Eva bakes 3 cakes, how many cookies will she bake?

6

b) If Eva bakes 10 cookies, how many cakes will she bake?

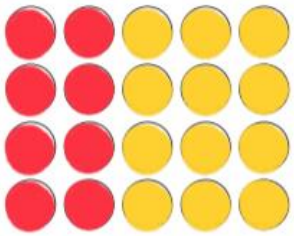
5

2 The ratio of red to yellow counters is 2 : 3

There are 20 counters in total.

How many counters of each colour are there?

You can colour the counters to help you.

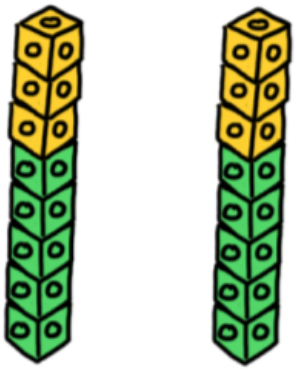


yellow 12 red 8

3 Tom has 5 green cubes for every 3 yellow cubes.

He has 16 cubes in total.

Draw a diagram to represent this.



Medium

a. 4:12 1:3	b. 5:10 1:2	c. 6:14 3:7	d. 8:10 4:5

a.	1:2	2:4	3:6	4:8	5:10	6:12
b.	1:4	2:8	3:12	4:16	5:20	6:24
c.	2:3	4:6	6:9	8:12	10:15	12:18
d.	5:7	10:14	15:21	20:28	25:35	30:42
e.	2:11	4:22	6:33	8:44	10:55	12:66
f.	3:7	6:14	9:21	12:28	15:35	18:42

Esther is building a tower of cubes.

The ratio of red to yellow cubes is 3 : 1

The tower has 6 yellow cubes. How many red cubes are there?

18

Nijah plays 21 games of chess.

For every 2 games she wins, she loses 5 games.

How many more games does she lose than win?

9

a) Huan is making a drink by mixing 1 part juice with 5 parts water.

Complete the table to show the amounts he would need to use.

Juice	Water
1 litre	5 litres
2 litres	10 litres
4 litres	20 litres
100 ml	500 ml
200 ml	1 litre
300 ml	1·5 litres
6 litres	30 litres
150 ml	750 ml

b) Huan makes 1 litre 500 ml of drink in total.

How much juice and water does he need to use?

juice 250 ml

water 1,250 ml

Spicy

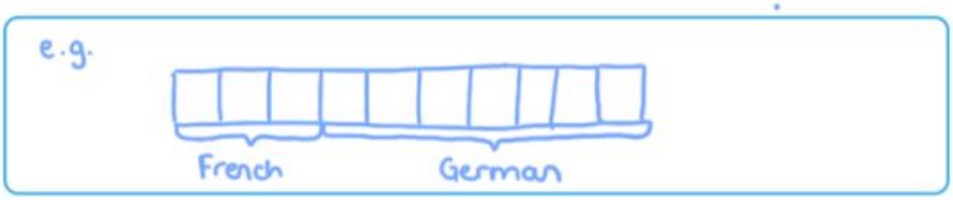
a. 4:12 1:3	b. 9:6 3:2	c. 8:12 2:3	d. 6:12 1:2

a.	1:2	2:4	3:6	4:8	5:10	6:12
b.	1:5	2:10	3:15	4:20	5:25	6:30
c.	2:7	4:14	6:21	8:28	10:35	12:42
d.	3:5	6:10	9:15	12:20	15:25	18:30
e.	7:11	14:22	21:33	28:44	35:55	42:66
f.	5:7	10:14	15:21	20:28	25:35	30:42

A group of students study French or German in the ratio 3 : 7

a) Which subject has the most students? German

b) Draw a diagram to represent this.



c) There are 80 students in total.

How many more students study German than French?

Wednesday

Fluent in 5

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $8.4 + 2.3 = \mathbf{10.7}$ (M)
2. $\frac{6}{10} - \frac{2}{5} = \frac{\mathbf{2}}{\mathbf{10}}$ *or* $\frac{\mathbf{1}}{\mathbf{5}}$ (M)
3. $4.3 \times 3 = \mathbf{12.9}$ (M)
4. $456 \div 19 = \mathbf{24}$ (W)
5. $453.21 + \mathbf{390.03} = 843.24$ (W)
6. $6^2 \times 2 + 3 = \mathbf{75}$ (M)

Use scale factors to enlarge shapes

Mild

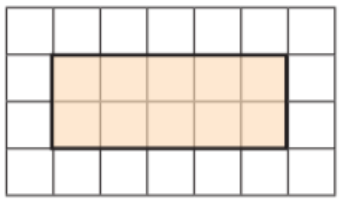
3

Yes

A = 2cm

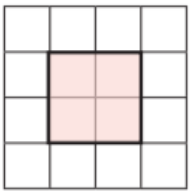
B = 6cm

1 **a)** Here is a rectangle.

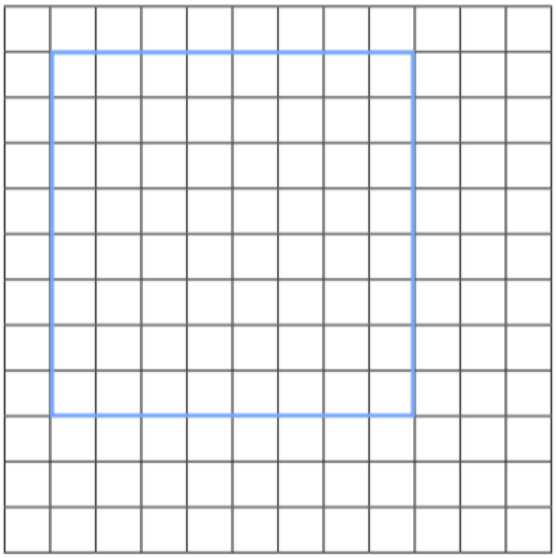


Draw another rectangle where each side is twice as big.

b) Here is a square.



Draw another square where each side is 4 times as big.



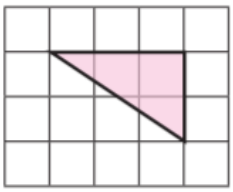
No, 2cm has been multiplied by 2 to give 4cm, then should have been multiplied by 4 again to give 8cm.

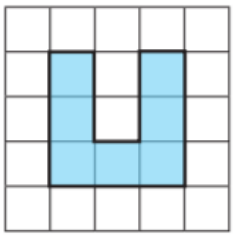
Medium

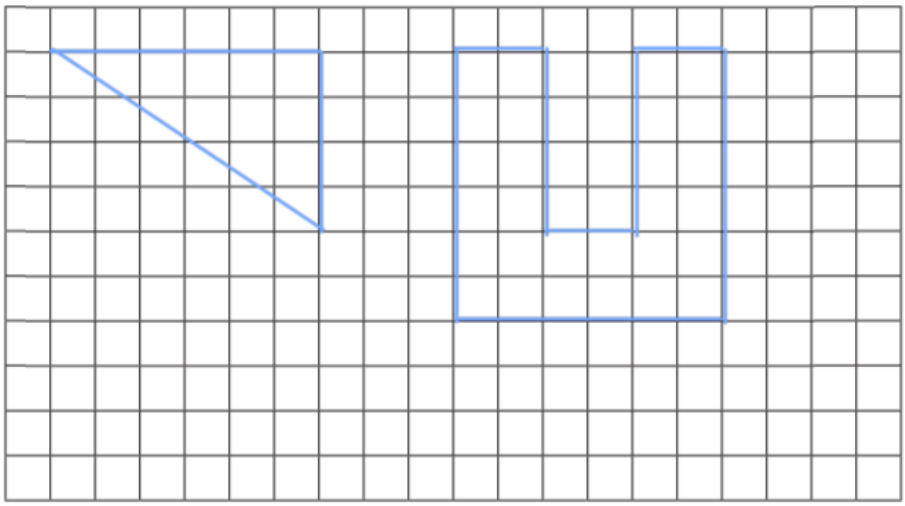
a) Explain what it means for a shape to be enlarged by a scale factor of 2

All of the side lengths are twice as big.

b) Enlarge the shapes by a scale factor of 2







Complete the sentence.

A shape in which each side has tripled in size has been enlarged by a scale factor of [3]

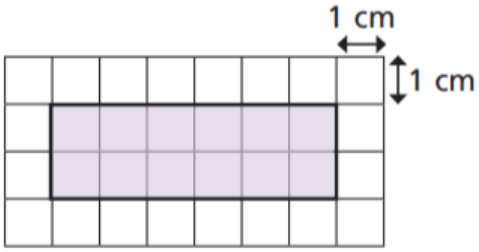
False, shape A has been increased by a scale factor of 2 to create shape B.

A = 5cm; B = 15cm

A = 12cm; B = 20cm

The sides of the rectangle are increased by a scale factor of 2

What is the perimeter of the new shape?



32 cm

No because shape A has been enlarged to create shape B using a scale factor of 3. Shape C would have a length of 3 x 3 = 9cm.

Scale factor of 1.5. The perimeter of the original shape is 16cm. 16 x 1.5 = 24

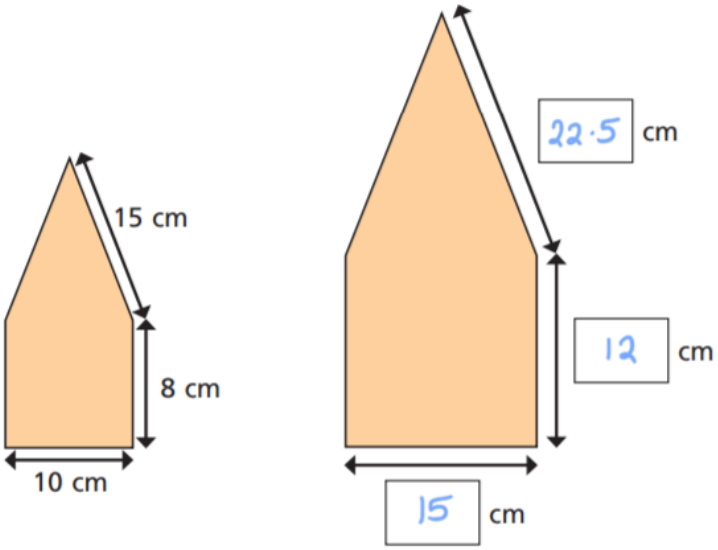
Spicy

False. Shape A has been increased by a scale factor of 1.5 to create shape B.

True

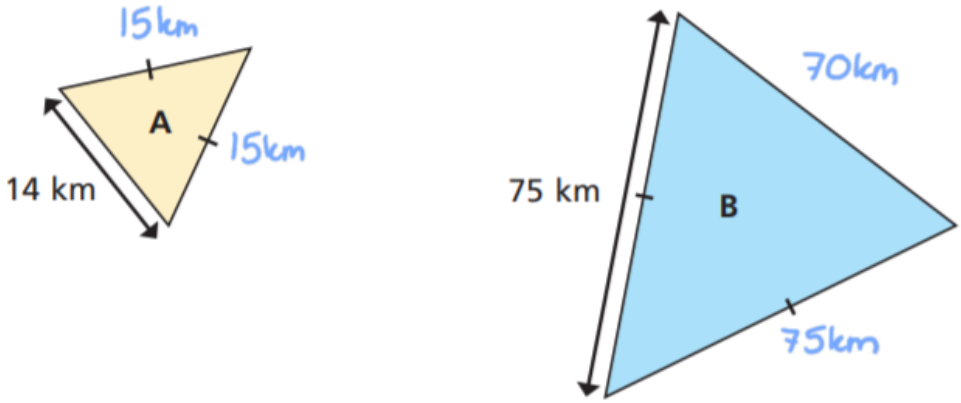
The shape has been enlarged by a scale factor of $1\frac{1}{2}$

Fill in the dimensions of the new shape.



Triangle A has been enlarged by a scale factor of 5 to make triangle B.

Find the perimeter of each triangle.

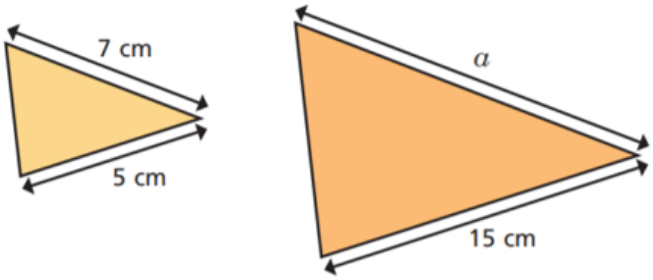


perimeter of A = 44 km

perimeter of B = 220 km

The two triangles are similar.

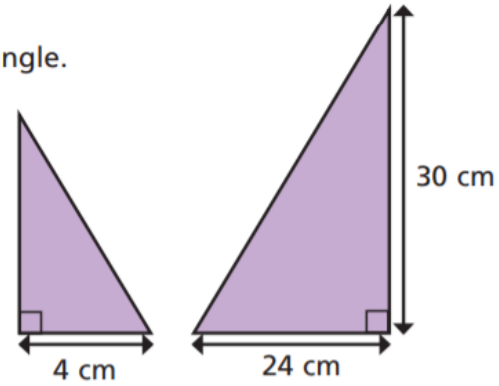
Find the length of a.



$a =$ 21 cm

The two triangles are similar.

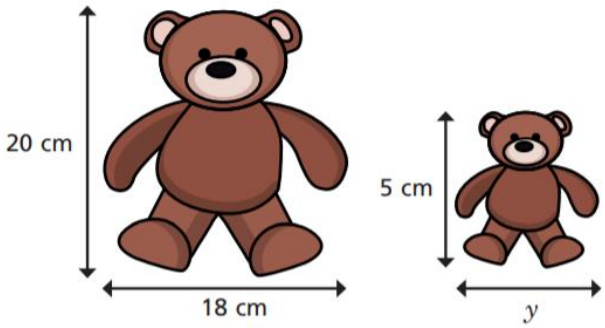
Find the area of the smaller triangle.



area = 10 cm^2

These two children's toys are similar.

Find the length marked y.



$y =$ 4·5 cm

Scale factor of 3.5. The perimeter of the original shape is 14cm. 14 x 3.5 = 49

Yes because shape A has been enlarged to create shape B using a scale factor of 2.

Thursday

Fluent in 5

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. 780 ÷ 100 = **7.8** (M)
2. 94 x 23 = **2,162** (W)
3. (3 + 8) x 3 + 2 = **35** (M)
4. **108.9** + 84.32 = 193.22 (W)
5. 8.1 ÷ 0.9 = **9** (M)
6. $\frac{3}{5}$ x 5 = $\frac{\mathbf{15}}{\mathbf{5}}$ *or* **3** (M)

Solve problems involving ratio in different contexts

Mild

1 Whitney buys 6 cans of lemonade for £3

a) How much do 12 cans cost? £6

b) How much do 3 cans cost? £1·50

c) How much do 15 cans cost? £7·50

2 The ratio of red to green grapes in a bowl is 3 : 1

a) Explain what this means.

For every 3 red grapes there is 1 green grape.

b) There are 12 more red grapes than green grapes.

What is the total number of grapes in the bowl? 24

Write the correct answer:

1. Beef must be cooked for 30 minutes for every 1kg. How long would it take to cook:

   2 kgs? **60 minutes/1 hour**

   4 kgs? **120 minutes/2 hours**

   6 kgs? **180minutes/3 hours**

   8 kgs? **240 minutes/4 hours**

2. To make 1 litre of jam, I use 100 strawberries.
   How many strawberries do I need to make:

   2 litres? **200 strawberries** 3.5 litres? **350 strawberries**

3. I need to collect 30 stickers. Each bag of crisps contains 3 stickers.
   How many bags will I need to buy?

   10 bags

4. The mother bear is fed 4 fish for every 2 fish that her cub is fed. How many fish would the cub get if the mother is fed:

   10 fish? **5 fish** 20 fish? **10 fish**

5. There are 10 boys for every 30 girls at the disco.
   How many boys are there if there are:

   60 girls? **20 boys** 90 girls? **30 boys**

Medium

Amir is making some chocolate chip biscuits.

He has this list of ingredients to make 6 biscuits.

Chocolate chip biscuits (makes 6)

120 g butter

72 g sugar

180 g plain flour

60 g chocolate chips

a) How much of each ingredient does Amir need to make 2 biscuits?

butter [40] g plain flour [60] g

sugar [24] g chocolate chips [20] g

b) How much of each ingredient does Amir need to make 10 biscuits?

butter [200] g plain flour [300] g

sugar [120] g chocolate chips [100] g

c) Amir has 240 g of chocolate chips.

What is the maximum number of biscuits he can make? [24]

Dexter has some 20p and 50p coins in a jar.

For every three 20p coins he has one 50p coin.

There are 12 coins in the jar in total.

How much money is in the jar?

[£3·30]

A drink is made using 3 parts orange juice to 2 parts lemonade.

Esther makes 1.2 litres of this drink.

How much orange juice does she need?

720 ml

Write the correct answer:

1. Beef must be cooked for 40 minutes for every 1kg. How long would it take to cook:

   2 kgs? **80 minutes/1 hour 20minutes**

   4 kgs? **160 minutes/2 hours 40 minutes**

   6 kgs? **240 minutes/4 hours**

   8 kgs? **320 minutes/5 hours 20 minutes**

2. To make ½ litre of jam, I use 50 strawberries.
   How many strawberries do I need to make:

   2 litres? **200 strawberries** 3 litres? **300 strawberries**

3. I need to collect 80 stickers. Each bag of crisps contains 4 stickers.
   How many bags will I need to buy?

   20 bags

4. The mother bear is fed 5 fish for every 2 fish that her cub is fed.
   How many fish would the cub get if the mother is fed:

   10 fish? **4 fish** 20 fish? **8 fish**

5. There are 6 boys for every 9 girls at the disco.
   How many boys are there if there are:

   27 girls? **18 boys** 72 girls? **48 boys**

Spicy

Write the correct answer:

1. Beef must be cooked for 40 minutes for every 1kg. How long would it take to cook:

   2 kgs? **80 minutes/1 hour 20 minutes**

   5.5 kgs? **220 minutes/3 hours 20 minutes**

   6.25 kgs? **250 minutes/4 hours 10 minutes**

   8.75 kgs? **350 minutes/5 hours 50 minutes**

2. To make ¾ litre of jam, I use 45 strawberries.
   How many strawberries do I need to make:

   2 litres? **120 strawberries** 3.5 litres? **210 strawberries**

3. I need to collect 66 stickers. Each bag of crisps contains 3 stickers.
   How many six-pack bags will I need to buy?

   4 six-packs How many bags will be left over? **2 bags**

4. The mother bear is fed 6 fish for every 3 fish that her cub is fed. How many fish would the cub get if the mother is fed:

   18 fish? **9 fish** 26 fish? **13 fish**

5. There are 6 boys for every 9 girls at the disco.
   How many boys are there if there are:

   54 girls? **36 boys** 144 girls? **96 boys**

Two shops sell the same cereal but in different-sized boxes.

Shop A	Shop B
500 g of cornflakes	750 g of cornflakes
£2.10	£3.30

Which shop is better value for money? Shop A

Dora draws two similar rectangles.

The length and width of both rectangles are even numbers.

What is the largest possible area for the small rectangle?

8 cm²

Aisha has two boxes of sweets.

- In the first box, the ratio of red sweets to green sweets is 3 : 1
- In the second box, for every 2 orange sweets there are 3 yellow sweets.
- There is the same number of sweets in each box.
- There are 12 yellow sweets in the second box.

How many sweets are in the first box?

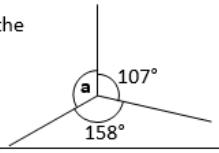
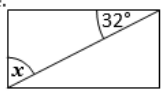
20

Friday

Challenge of the Week

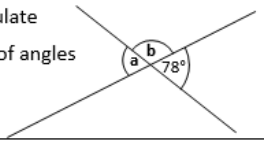
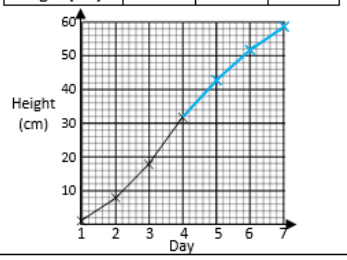
Key Skills

Mild

A: Place Value, Add and Subtract		B: Multiply, Divide and Fractions		C: Geometry and Problem Solving	
1. What is the value of the **1** in this number? 7,186,354	5:1 **100,000**	11. Circle all the **multiples** of 25. 5 40 (75) (100)	5:8 **75, 100**	21. A race track is 2.654 kilometres in length. In a race, cars much do 3 laps. How long is the race?	5:18 **7.962 km**
2. Write **three hundred and ten thousand, five hundred** in digits.	5:1 **310,500**	12. Circle the **composite (non-prime)** numbers? (21) 23 (32) 37 43	5:9 **21, 32**		
3. Round 596,147 to the **nearest hundred thousand.**	5:2 **600,000**	13. 2,169 ÷ 3	5:10 **723**	22. Which of these is the largest? **a.** 0.85 **b.** $\frac{7}{10}$ **c.** 65%	5:19 **a**
4. What is the missing number? 500,350 600,350 ☐ 800,350	5:2 **700,350**	14. 0.205 x 10	5:11 **2.05**		
5. Find the difference in temperatures. London 0°C Glasgow -3°C	5:3 **3°C**	15. Complete this sequence of **cube numbers.** 1 ☐ 27 64	5:12 **8**	23. Draw an angle of 125°.	5:25 **Angle drawn**
6. Write this number in Roman Numerals: 612	5:4 **DCXII**	16. Write **<**, **=** or **>** to make this correct: $\frac{6}{10}$ ☐ $\frac{21}{40}$	5:13 **>**		
7. 24,148 – 16,200 =	5:5 **7,948**	17. Find an **equivalent fraction** of $\frac{45}{100}$. 	5:14 **$\frac{9}{20}$**	24. Calculate the missing angle labelled **a**: 	5:26 **95°**
8. 137,449 + 25,658 =	5:5 **163,107**	18. Write $3\frac{7}{15}$ as an **improper fraction.**	5:15 **$\frac{52}{12}$**		
9. Complete this sum without written working. 38,700 + 11,300 =	5:6 **50,000**	19. $\frac{3}{9}$ x 45 =	5:16 **15**	25. A diagonal has been drawn through this rectangle. Calculate the angle labelled x. 	5:27 **58°**
10. 17,293 seats out of 25,000 are taken. How many are empty?	5:7 **7,707**	20. Round 3.19 to the nearest whole number.	5:17 **3**		
Total (A)		Total (B)		Total (C)	
Test Total (A+B+C)		R (0-9)	Y (10-19)	G (20-25)	

Key Skills

Medium and Spicy

A: Place Value, Add, Subtract, Multiply and Divide		B: Fractions, Ratio, Proportion and Algebra		C: Measure and Problem Solving	
1. Write **one million, five thousand, seven hundred and fifty two** in digits.	6:1 **1,005,752**	11. Which is the **largest** fraction? $\frac{6}{10}$. $\frac{17}{30}$ or $\frac{33}{60}$	6:7 **$\frac{6}{10}$**	21. Name the shape: "I have 4 right angles and 2 pairs of equal sides".	6:24 **Rect-angle**
2. What is the value of the **9** in this number? 5,273,912	6:1 **900**	12. $\frac{9}{12} + \frac{1}{8} =$	6:8 **$\frac{21}{24}$ or $\frac{7}{8}$**	22. The **radius** of a circle is 4.25cm. How long is the **diameter**?	6:25 **8.5cm**
3. Round **3,457,318** to the nearest **hundred thousand**.	6:1 **3,500,000**	13. Simplify your answer. $\frac{9}{16} \times \frac{2}{5} =$	6:9 **$\frac{9}{40}$**	23. Calculate the size of angles **a** and **b**. 	6:26 **a=78° b=102°**
4. To a number I add 13 then subtract 2 and get 3. What did I start with?	6:2 **-8**	14. 3.5 x 10	6:10 **35**		
5. 6,149 x 38	6:3 **233,662**	15. 3.69 x 6	6:11 **22.14**	24. Complete the line graph showing the height of a sunflower over time: 	6:29 **Line graph drawn**
6. Give your answer to the **nearest whole number**: 1,475 ÷ 32	6:3 **46**	16. Write this percentage as a **fraction** and a **decimal**. (24%)	6:12 **$\frac{6}{25}$ 0.24**		
7. Which is a **common multiple** of 50 and 75? 25 100 150 200	6:4 **150**	17. Find **65%** of 360.	6:13 **234**		
8. Circle **all** the **prime numbers**: 30 (31) (37) 39	6:4	18. What is the **scale factor**? 	6:14 **4**		
9. 28 ÷ 4 + 6 x 3	6:5 **25**	19. How long does a 5kg chicken take? To cook: 1 hour + 40mins per kg.	6:15 **4h 20m**		
10. How much cheaper is a meal? Burger £3.19 Fries £1.29 Meal £4.25	6:6 **23p**	20. What is the rule for this sequence? 1, 4, 13, 40, 121, …	6:16 **x3 +1**	25. Find the mean of these numbers: 4 6 3 3 6 5 7 4 3 4	6:30 **4.5**
Total (A)		Total (B)		Total (C)	
Test Total (A+B+C)		R (0-9)	Y (10-19)	G (20-25)	