Maths Lessons – Week 6

This pack includes your 3 maths lessons for the week. The pack includes:

- ✓ 'Quick Ten' maths starters to warm your brains up
- ✓ 3 maths lessons
- ✓ the links to the online lessons
- ✓ worksheets and answers
- ✓ an extension task.

Read through the document carefully as it will give you instructions on what to do. Your work this week is all about ratio and proportion. If you haven't done WEEK 5s maths learning yet, it would be a good idea to watch the online lessons as a recap as it will help you with this weeks maths learning. Good luck Year 6!

Lesson 1 – Teach and Practise

Starter – Quick 10

Answer these 10 questions, which cover areas of maths you have already been taught, as quickly as possible. Time yourself and see if you can beat your score next time.

Question	Answer	Question	Answer
EXAMPLE: 2 X 4 =	8		
1. 499 – 100 =		6. 40 x 30 =	
2. 6 squared=		7. 3 /4 + 7/12 =	
3. 7 x 8 =		8. 4 + 9 x 6 =	
4. 4/5 + 1/5=		9. 6.009 – 0.021 =	
5. 25% of 85 =		10. 3.01 ÷ 100 =	

Input – Open this link https://whiterosemaths.com/homelearning/year-6/and go to WEEK 2. Watch the first lesson called calculating scale factors.

Online video

Activity: Complete the questions below about calculating scale factors. You can watch the video as many times as you want to help you answer the questions.
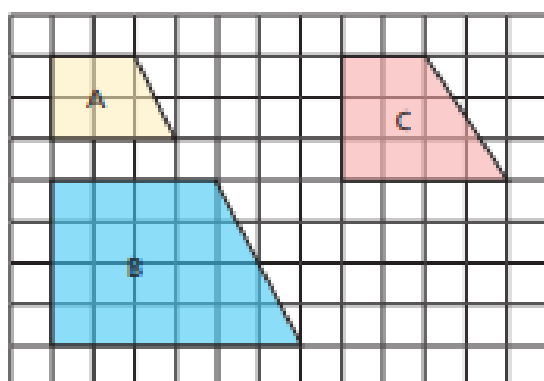
1 Complete the sentences.
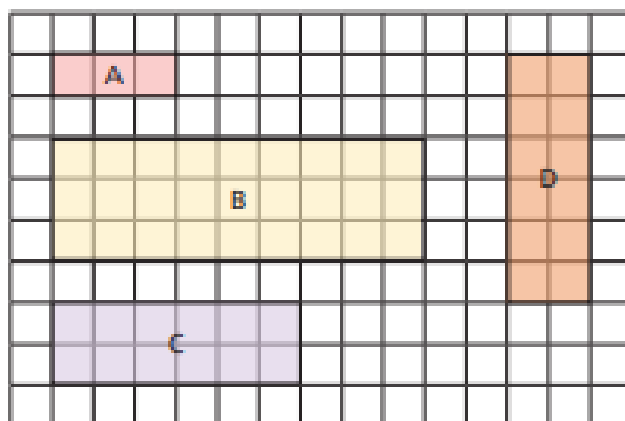
Shape B is an enlargement, by a scale factor of ☐ , of shape A.

Shape C is an enlargement, by a scale factor of ☐ , of shape A.

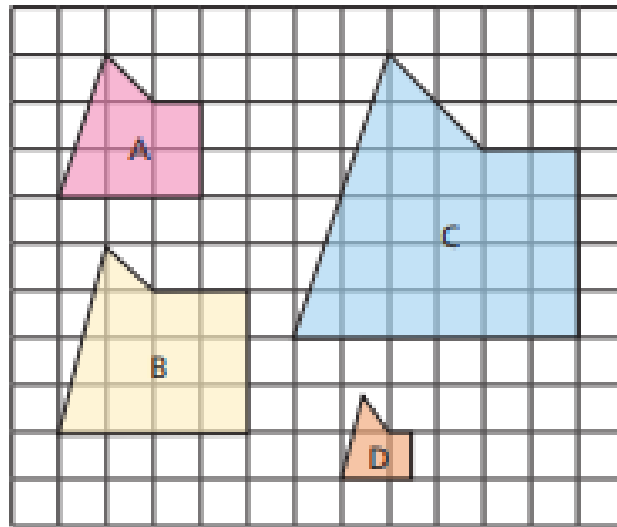Shape D is an enlargement, by a scale factor of ☐ , of shape A.

2 Shape B is an enlargement of shape A. Shape C is not an enlargement of shape A.

Talk to a partner about why this is the case.

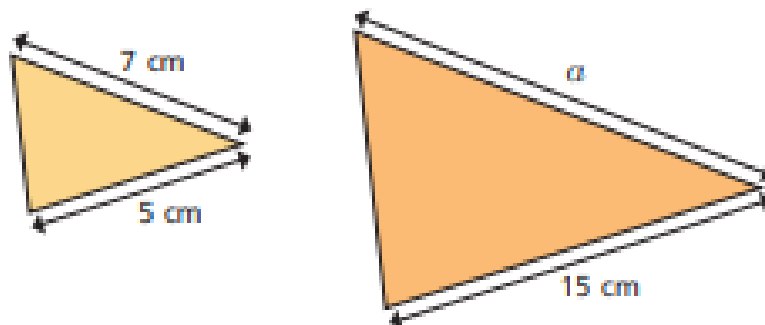**3** Tick all the shapes that are an enlargement of shape A.

How do you know which shapes are enlargements?

4 The two triangles are similar.

Find the length of a.
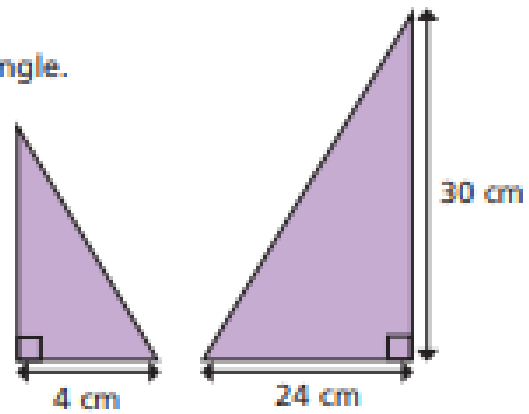

$a = $ ⬚ cm

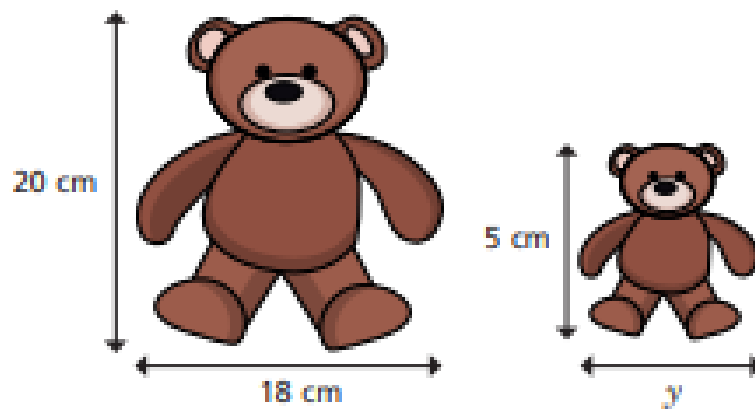**5** The two triangles are similar.

Find the area of the smaller triangle.

30 cm

4 cm

24 cm

area = ☐ cm²

6 These two children's toys are similar.

Find the length marked y.

20 cm

18 cm

5 cm

y

y = ☐ cm

7 The rectangle is enlarged by a scale factor.

The perimeter of the enlarged rectangle is 64 m.

What is the scale factor of enlargement?

2.8 m

5.2 m
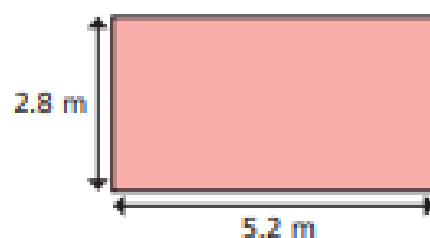
scale factor =

8 The diagram shows three similar triangles.

Calculate the missing values.

a

37°

6 mm

b

21 mm

c

18 mm

53°

d

27 mm
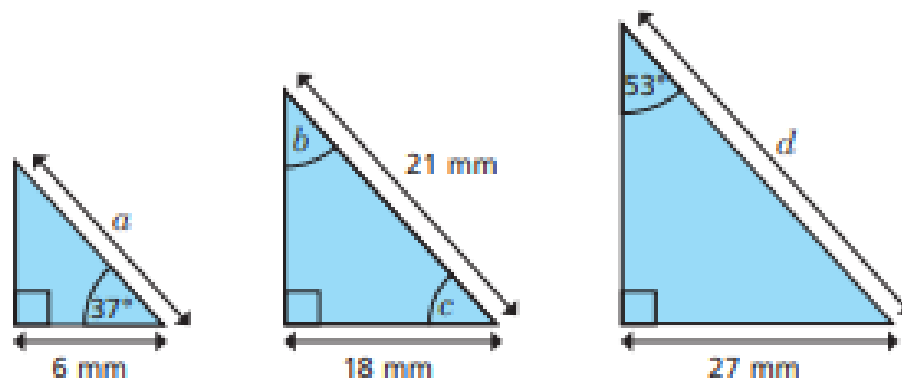
a =   *b* =   *c* =   *d* =

If you have struggled with any of the questions, don't worry, go back to the video and recap what has been said. Once you have completed these, open the answers document to check your work.

Lesson 2 – Teach and Practise

Starter – Quick 10

Answer these 10 questions, which cover areas of maths you have already been taught, as quickly as possible. Time yourself and see if you can beat your time from lesson 1.

Question	Answer	Question	Answer
EXAMPLE: 2 X 4 =	8		
1. 1087 – 100 =		6. 60 x 30 =	
2. 7 squared=		7. 1 /3 + 7/15 =	
3. 6 x 9 =		8. 21 – (3 x 4) =	
4. 4/6 - 1/6=		9. 9.102 – 0.927 =	
5. 25% of 126 =		10. 2.03 ÷ 100 =	

Input – Open this link https://whiterosemaths.com/homelearning/year-6/ and go to WEEK 2. Watch the second lesson called Ratio and Proportion.

Activity: Once you have watched the video and completed the questions in the video, complete the questions below. Remember, you can watch the video as many times as you like.

Ratio and proportion problems

1 Whitney buys 6 cans of lemonade for £3

   a) How much do 12 cans cost?

   b) How much do 3 cans cost?

   c) How much do 15 cans cost?

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

   a) Explain what this means.

_____

_____

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

      What is the total number of grapes in the bowl?

3 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 [   ] g   plain flour [   ] g

sugar [   ] g   chocolate chips [   ] g

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

butter [   ] g   plain flour [   ] g

sugar [   ] g   chocolate chips [   ] g

c) Amir has 240 g of chocolate chips.

What is the maximum number of biscuits he can make?

4 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?

[ ]

5 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?

[ ] ml

6 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 _____

Explain why.

7 Dora draws two similar rectangles.

My larger rectangle is 4 times the size of the smaller one.

The perimeter of the larger rectangle is 48 cm.

The length and width of both rectangles are even numbers.

What is the largest possible area for the small rectangle?

☐ cm²

8 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?

☐

Lesson 3 – Apply

Starter – Quick 10

Answer these 10 questions, which cover areas of maths you have already been taught, as quickly as possible. Time yourself and see if you can beat your time from lesson 1.

Question	Answer	Question	Answer
EXAMPLE: 2 X 4 =	8		
1. 12, 087 – 100 =		6. 80 x 50 =	
2. 1 squared=		7. 3/7 + 7/35 =	
3. 4 x 7 =		8. 20 + 12 ÷ 4 =	
4. 11/15 - 9/15=		9. 12.35 – 0.637 =	
5. 25% of 846 =		10. 1.03 x 100 =	

Activity: There are 6 SATs questions for you to answer based on your learning for this week. Have a go at them and then check your answers using the mark scheme. Good luck!

Q1.

Here are the ingredients for chocolate ice cream.

cream	400 ml
milk	500 ml
egg yolks	4
chocolate	120 g
sugar	100 g

Stefan has only 300 ml of cream to make chocolate ice cream.

How much **chocolate** should he use?

Show your method

g

2 marks

Q2.

This table shows the areas of the United Kingdom and Jamaica.

Country	Area (square kilometres)
United Kingdom	240,000
Jamaica	10,000

The area of the United Kingdom is larger than the area of Jamaica.
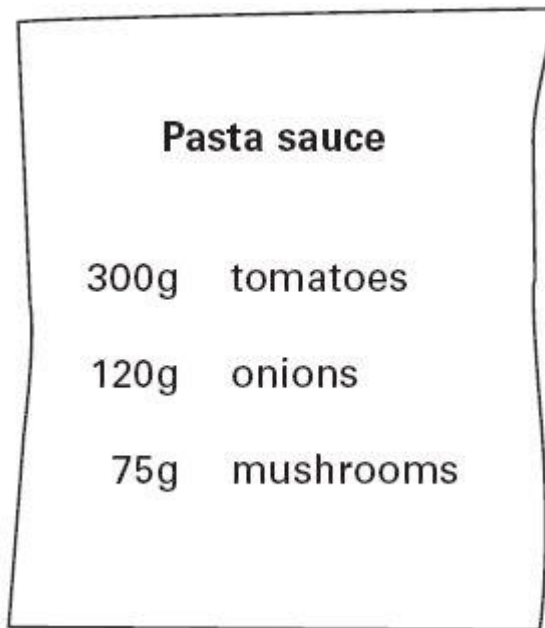
How many times larger is the United Kingdom?

times larger

1 mark

Q3.

Here is a recipe for pasta sauce.

Pasta sauce

300g   tomatoes

120g   onions

75g   mushrooms

Josh makes the pasta sauce using **900 g** of **tomatoes**.

What weight of **onions** should he use?

g

1 mark

Q4.

A stack of 20 identical boxes is 140 cm tall.

140 cm

Not actual size
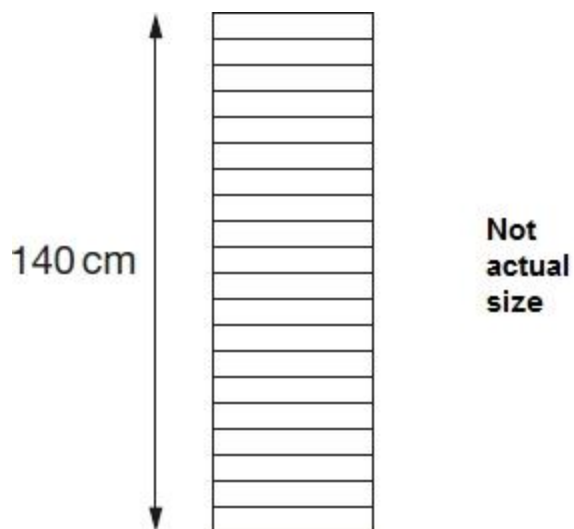
Stefan takes **three** boxes off the top.

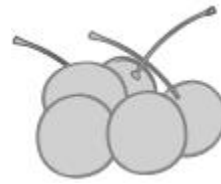How tall is the stack now?

Show your method

cm

2 marks

Q5.

Seb had some cherries.

Every day he ate 10 cherries and gave 5 away.

After he gave the last 5 cherries away, he had eaten 40 cherries altogether.

How many cherries did Seb have at the start?

Show your method

2 marks

Q6.

These are the prices of cheese in a shop.

Cheddar cheese
82p for 100 grams

Edam cheese
66p for 100 grams

Cottage cheese
45p for 100 grams

Mina buys **200 g** of Cheddar cheese and **150 g** of Edam cheese.

How much does she pay altogether?

Show your method

£

2 marks

Seb buys some cottage cheese for £1.35.

How many grams of cottage cheese does he get?

g

1 mark

Extension Task:

Once you have completed the 3 lessons, have a go at the Target Maths ratio and proportion sheets. You can choose either A, B or C based on your confidence level. Sheet A is for people who feel less confident and sheet C is for people who feel extremely confident! I would also start with Sheet B and see how I feel – if it's too tricky move to sheet A or if you found it a comfortable challenge and got the majority of answers correct, move onto sheet C for a challenge!
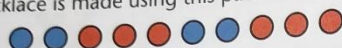
Good luck!

RATIO AND PROPORTION

TARGET To solve problems involving ratio and proportion.

Ratio compares part to part.
Proportion compares part to whole.

Example 1
A necklace is made using this pattern of beads.

Ratios of blue to red beads	$2 : 3$
Proportion of blue beads	$\frac{2}{5}$
Proportion of red beads	$\frac{3}{5}$

Example 2
In a supermarket 2 large packets of cereal are put on the shelves for every 5 small packets. 40 small packets are put out. How many large packets are put on the shelves?

Find ratio of small to large packets.

$5 : 2$

Find value of one part.

$8 \ (40 \div 5 = 8)$

Work out the number of large packets put out on shelves.

$16 \ (8 \times 2 = 16)$

Example 3
At a swimming gala 3 in every 8 swimmers receive a medal. How many medals are awarded if there are 72 swimmers altogether?

Find proportion of swimmers receiving a medal.

$\frac{3}{8}$ (3 in every 8)

Find the number of medals awarded.

$27 \ (72 \div 8 = 9 \qquad 9 \times 3 = 27)$

A

A necklace is made using this pattern of beads.

1. Write the ratio of green beads to black beads.

2. Write the proportion of the beads which is green.

3. If there are 20 green beads, how many black beads are there?

4. If there are 56 beads altogether, how many beads are:
   a) black   b) green?

5. A map has a scale of 1 cm to 2 km. Two castles are 23 cm apart on the map. What is the actual distance between the castles?

6. Lavinia makes jam. One jar in every 4 is plum jam. She makes 56 jars altogether. How many jars of plum jam does she make?

7. A shop sells 5 ice creams to every 2 lollies it sells. 35 ice creams are sold. How many lollies are sold?

8. Two in every three members of the audience at a concert are children. There are 1200 children at the concert. How many adults are in the audience?

9. In Year 4 the ratio of children with a pet to those with no pet is $5 : 4$. If 36 children do not have a pet, how many do?

B

1. A bridge is 48 m tall. A scale model of the bridge is 37 cm long and 12 cm tall. How long is the actual bridge?

2. In a cake recipe the ratio of dried fruit to nuts is 3 : 2. What quantity of dried fruit is required if 90 g of nuts is used?

3. a) Five bars of chocolate cost £8·75. What do three bars cost?
   b) The cost of all the bars in a box is £35. How many bars are in a box?

4. The ratio of the weight of a large bag of potatoes to that of a small bag is 11 : 5. If a large bag weighs 5·5 kg, how much does a small bag weigh?

5. There are 360 passengers on a flight to Singapore from London. Five in every eight of the passengers are flying on to Sydney. How many of the passengers are bound for Sydney?

6. A factory makes 7 single beds to every 4 double beds.
   a) How many double beds does it produce if it makes 91 single beds?
   b) How many single beds does it produce if it makes 96 double beds?

7. A car uses £8 worth of petrol for every 100 km it travels. What is the cost of the petrol used to travel:
   a) 70 km   b) 240 km?

8. The profits made by a shop are shared between the owner and her assistant in a ratio of 5 : 3, the owner receiving the larger share. How much does the assistant receive if:
   a) total profit is £20 000
   b) the owner receives £17 435?

C

A row of tiles has this repeating pattern.
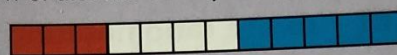
1. How many tiles are blue if:
   a) 15 are red
   b) 36 are white
   c) there are 72 tiles altogether?

2. How many tiles are there altogether if there are:
   a) 48 white tiles
   b) 75 blue tiles
   c) 24 red tiles?

3. In a vote in the House of Commons 7 in 12 votes cast are for the proposed change in law. Altogether 564 MPs vote. How many vote for the proposal?

4. The ratio of actors to audience in a theatre is 2 : 17. There are 391 people in the audience. How many actors are there?

5. In a library the ratio of fiction to non-fiction books is 6 : 5. The library has 2750 books. How many are fiction?

6. One kilogram of steak costs £9·60. What is the cost of:
   a) 800 g   b) 275 g?

7. The scale of a map is 1 : 250 000. What is the actual distance between:
   a) two mountain summits which are 12 cm apart on the map
   b) two villages which are 5 cm apart on the map?

8. A chemist mixes two powders. He uses 40 g of Powder A to every 25 g of Powder B.
   a) How much of Powder B does he need if he uses 100 g of Powder A?
   b) How much of the mixture does he make if he uses 375 g of Powder B?