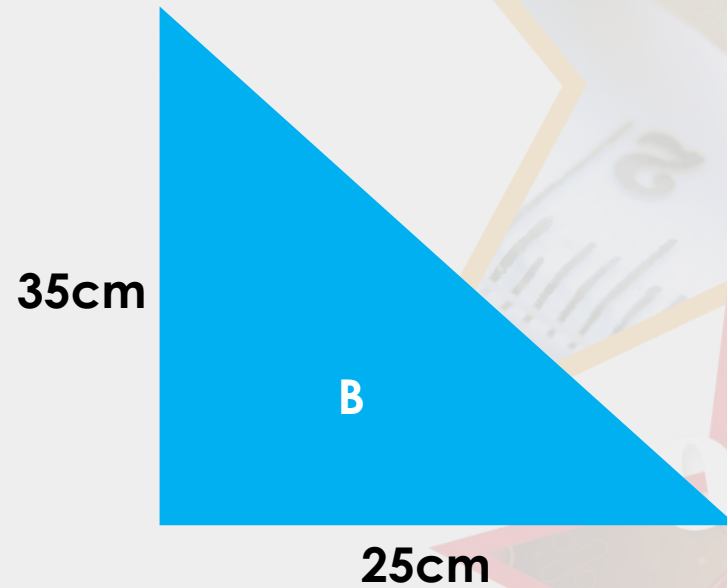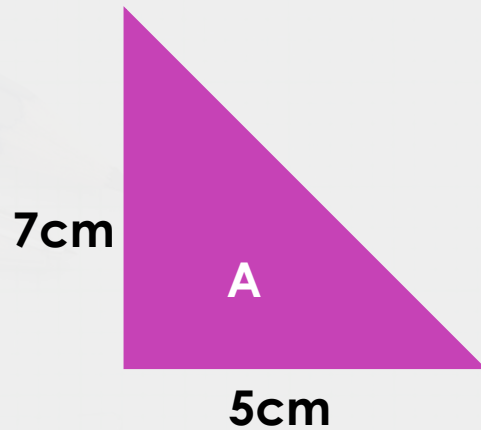# Thursday 25th June
Year 5/6: Ratio And Proportion Problems

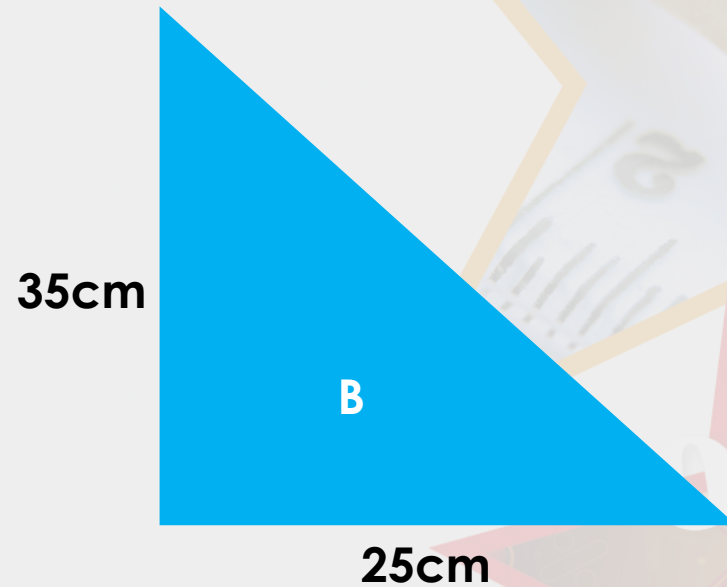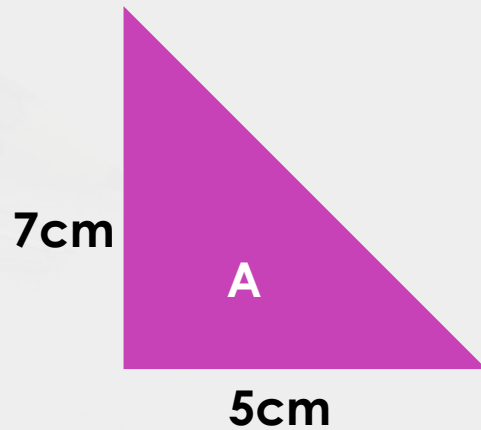# How many times smaller is shape A than shape B?

7cm

A

5cm

35cm

B

25cm

Not to scale

How many times smaller is shape A than shape B?

7cm

A

5cm

35cm

B

25cm

5 times smaller

Not to scale

Shape A has been enlarged by different scale factors to make shapes B, C and D.

Calculate the missing measurements.

Shape	Length	Width
A	10cm	12cm
B		24cm
C	40cm	
D		36cm

Shape A has been enlarged by different scale factors to make shapes B, C and D.

Calculate the missing measurements.

Shape	Length	Width
A	10cm	12cm
B	**20cm**	24cm
C	40cm	**48cm**
D	**30cm**	36cm

True or false?

I need 20g of flour for every 15g of sugar.

If I have 175g of ingredients, I will have 80g of flour.

True or false?

I need 20g of flour for every 15g of sugar.

If I have 175g of ingredients, I will have 80g of flour.

False. There will be 100g of flour.

The ratio of strawberries to grapes is 7:3.

Harrison has 30 pieces of fruit in total.

Calculate the number of strawberries and grapes.

The ratio of strawberries to grapes is 7:3.

Harrison has 30 pieces of fruit in total.

Calculate the number of strawberries and grapes.

21 strawberries, 9 grapes.

Will is buying some paint.

The ratio of white to blue to green paint is 10:30:90.

If he buys 120 litres of blue paint, how much white and green paint will he need?

Will is buying some paint.

The ratio of white to blue to green paint is 10:30:90.

If he buys 120 litres of blue paint, how much white and green paint will he need?

40 litres of white paint; 360 litres of green paint.

Isla is decorating a cake.

She needs 2 packs of purple sweets for every 5 packs of chocolate buttons.

1 pack of purple sweets costs £1.20
1 pack of chocolate buttons costs £1.22

She has spent £25.50 in total.

How many packs of each has she bought?

Problem Solving 1

Isla is decorating a cake.

She needs 2 packs of purple sweets for every 5 packs of chocolate buttons.

1 pack of purple sweets costs £1.20
1 pack of chocolate buttons costs £1.22

She has spent £25.50 in total.

How many packs of each has she bought?

6 packs of purple sweets; 15 packs of chocolate buttons

A smoothie recipe serves 2 people.
It says to use 4 cherries, 5 apples and 2 bananas.

Will says,

To serve 10 people I will need 50 pieces of fruit in total.

Charlie says,

To serve 10 people I will need to use 25 apples.

Who is correct? Explain your answer.

A smoothie recipe serves 2 people.
It says to use 4 cherries, 5 apples and 2 bananas.

Will says,

To serve 10 people I will need 50 pieces of fruit in total.

Charlie says,

To serve 10 people I will need to use 25 apples.

Who is correct? Explain your answer.
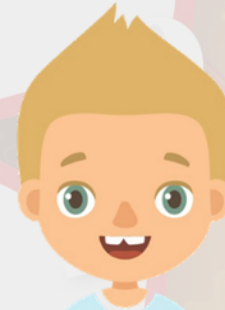
Charlie is correct because…

A smoothie recipe serves 2 people.
It says to use 4 cherries, 5 apples and 2 bananas.

Will says,

To serve 10 people I will need 50 pieces of fruit in total.

Charlie says,

To serve 10 people I will need to use 25 apples.
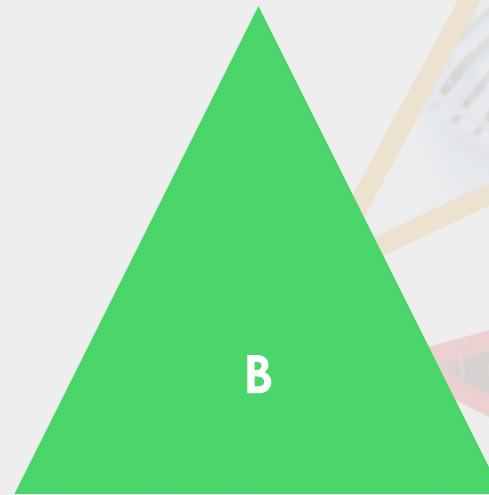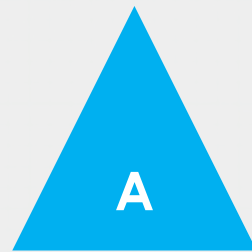
Who is correct? Explain your answer.

Charlie is correct because the recipe has increased by a scale factor of 5 so he will need 20 cherries, 25 apples and 10 bananas, which is 55 pieces of fruit altogether.

Y6

Below are 2 equilateral triangles. Triangle B has been enlarged from triangle A by a scale factor of 9.

Calculate the perimeter of each triangle.

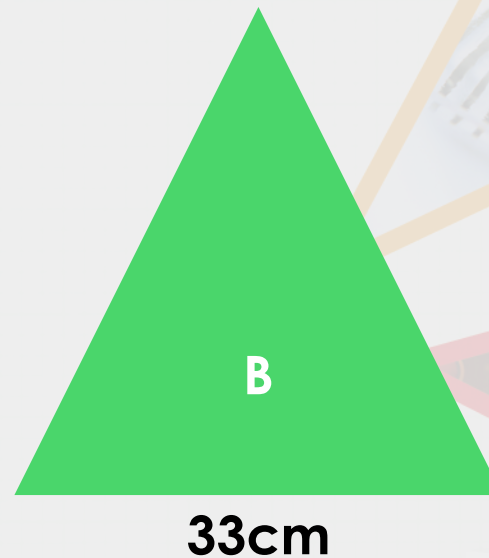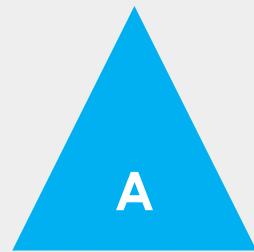A

B

33cm

Not to scale

Below are 2 equilateral triangles. Triangle B has been enlarged from triangle A by a scale factor of 9.

Calculate the perimeter of each triangle.

A

B

33cm

A. P = 11cm and B. P = 99cm

Not to scale

Year 5 and Year 6 Developing

1a. Shape A has been enlarged by different scale factors to make shapes B and C.

Shape	Length	Width
A	5cm	7cm
B		14cm
C	50cm	

Calculate the missing measurements.

☆ D

6 VF

1b. Shape A has been reduced by different scale factors to make shapes B and C.

Shape	Length	Width
A	30cm	80cm
B	15cm	
C		8cm

Calculate the missing measurements.

☆ D

6 VF

2a. True or false?

I need 1 banana for every 3 apples.

If I have 8 pieces of fruit, I will have 3 apples.

☆ D

6 VF

2b. True or false?

I need 2 apples for every 3 oranges.

If I have 10 pieces of fruit, I will have 4 apples.

☆ D

6 VF

3a. The ratio of red paint to blue paint is 5:1.

Kai has 60 bottles of paint in total.

Calculate the number of red and blue bottles of paint.

3b. The ratio of sweets to chocolates is 7:2.

Hafsa has 18 snacks in total.

Calculate the number of sweets and chocolates.

2a. To make 2 bracelets, the instructions say to use 3 packs of blue beads and 2 packs of red beads.

Arlo says,

> To make 4 bracelets I will need 8 packs of beads in total.

Max says,

> To make 4 bracelets I will need 4 packs of red beads.

Who is correct? Explain your answer.

6 R

2b. To make 4 bracelets, the instructions say to use 8 packs of blue beads and 4 packs of red beads.

Hattie says,

> To make 2 bracelets I will need 7 packs of beads in total.

Kelly says,

> To make 2 bracelets I will need 2 packs of red beads.
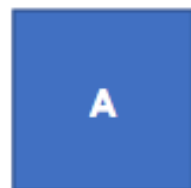
Who is correct? Explain your answer.

6 R

3a. Below are 2 squares. Square B has been enlarged from square A by a scale factor of 10.
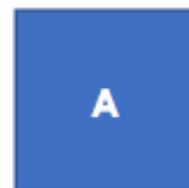
Calculate the perimeter of each square.

A

B

50cm

3b. Below are 2 squares. Square B has been enlarged from square A by a scale factor of 2.

Calculate the perimeter of each square.

A

B

20cm

Year 6 Expected

5a. Shape A has been enlarged by different scale factors to make shapes B, C and D.

Shape	Length	Width
A	3cm	4cm
B		12cm
C	15cm	
D	30cm	

Calculate the missing measurements.

☆ 6 VF

5b. Shape A has been reduced by different scale factors to make shapes B, C and D.

Shape	Length	Width
A	12cm	24cm
B		6cm
C	6cm	
D	2cm	

Calculate the missing measurements.

☆ 6 VF

6a. True or false?

I need 50g of flour for every 10g of sugar.

If I have 600g of ingredients, I will have 500g of flour.

☆ 6 VF

6b. True or false?

I need 25g of flour for every 30g of sugar.

If I have 275g of ingredients, I will have 100g of flour.

☆ 6 VF

7a. The ratio of strawberries to grapes is 3:2.

Pippa has 25 pieces of fruit in total.

Calculate the number of strawberries and grapes.

7b. The ratio of peas to carrots is 5:4.

Leah has 108 vegetables in total.

Calculate the number of peas and carrots.

5a. A smoothie recipe serves 2 people. It says to use 3 cherries, 5 grapes and 2 bananas.

Jaxon says,

> To serve 8 people I will need 44 pieces of fruit in total.

Harry says,

> To serve 8 people I will need to use 20 grapes.

Who is correct? Explain your answer.

6 R

5b. A smoothie recipe serves 3 people. It says to use 2 apples, 3 kiwis and 4 mangoes.

Mia says,

> To serve 15 people I will need 45 pieces of fruit in total.

Flo says,

> To serve 15 people I will need to use 20 mangoes.

Who is correct? Explain your answer.

6 R

6a. Below are two equilateral triangles. Triangle B has been enlarged from triangle A by a scale factor of 5.

Calculate the perimeter of each triangle.

A

B

30cm

6b. Below are two equilateral triangles. Triangle B has been enlarged from triangle A by a scale factor of 7.

Calculate the perimeter of each triangle.

A

B

49cm

Year 6 Greater Depth

9a. Shape A has been enlarged by different scale factors to make shapes B, C and D.

Shape	Length	Height	Width
A	10.5cm	7cm	2.5cm
B	26.25cm		
C		49cm	
D	94.5cm		22.5cm

Calculate the missing measurements.

6 VF

9b. Shape A has been reduced by different scale factors to make shapes B, C and D.

Shape	Length	Height	Width
A	15cm	25cm	18cm
B	1.5cm		
C			3.6cm
D	7.5cm		

Calculate the missing measurements.

6 VF

10a. True or false?

I need 0.5m of ribbon for every 2m of blue and 3m of green fabric.

If I have 11m of supplies, I will have 7.5m of green fabric.

6 VF

10b. True or false?

I need 2.5m of ribbon for every 9m of pink and 11m of purple fabric.

If I have 11.25m of supplies, I will have 5m of pink fabric.

6 VF

11a. The ratio of cupcakes to donuts and cookies is 6:1:7

Sarah has 70 treats in total.

Calculate the number of cupcakes, donut and cookies.

11b. The ratio of cupcakes to donuts and cookies is 5:3:2.

Jacob has 90 treats in total.

Calculate the number of cupcakes, donut and cookies.

8a. To create 10 cards the instructions say to use 20 straws, 50 sequins and 2 pots of glitter.

Lily says,

> To make 3 cards I will need 6 straws, 15 sequins and two fifths of a pot of glitter.

Hafsa says,

> To make 4 cards I will need 8 straws, 20 sequins and four fifths of a pot of glitter.

Who is correct? Explain your answer.

6 R

8b. To create 6 cards the instructions say to use 6 straws, 24 sequins and 3 pots of glitter.

Euan says,

> To make 10 cards I will need 10 straws, 40 sequins and 5 pots of glitter.

Joe says,

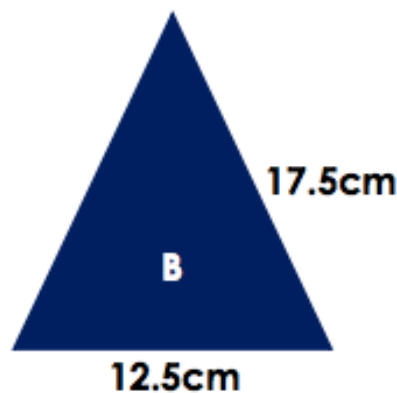> To make 1 card I will need 1.5 straws, 8 sequins and 1 pot of glitter.

Who is correct? Explain your answer.

6 R

9a. Below are two isosceles triangles. Triangle B has been enlarged from triangle A by a scale factor of 2.5

Calculate the perimeter of each triangle.

A

B

17.5cm

12.5cm

9b. Below are two isosceles triangles. Triangle B has been enlarged from triangle A by a scale factor of 7.

Calculate the perimeter of each triangle.

A

B

105cm

70.7cm