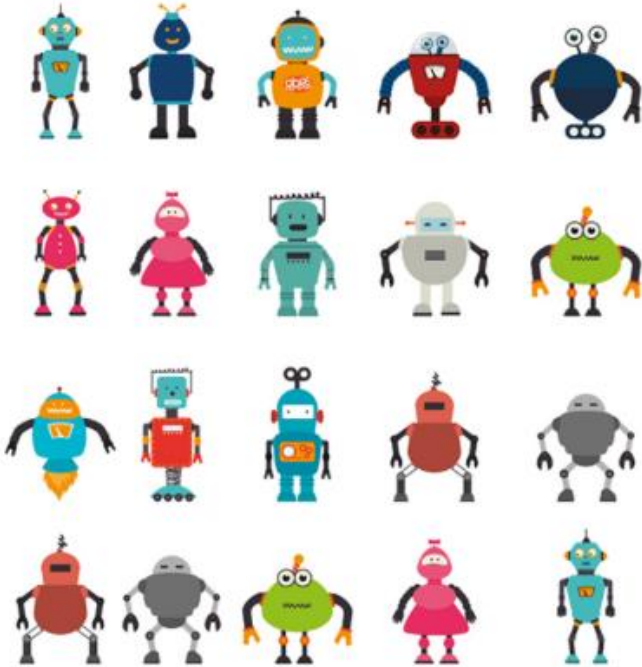


## Evidence

# Morning starter: Robotic ratios




- 1) How many robots are pink? How many robots are there altogether? What fraction of all the robots are pink? Can you find the equivalent fraction?
- 2) What percentage of the robots are pink? How can you write this as a decimal?
- 3) "2 out of 20 robots wear a dress. This is the same as saying 10% of robots wear a dress." True or false? How do you know?
- 4) True or false: "3 out of 20 robots have wheels. This is the same as saying 15% of the robots have wheels."
- 5) What fraction of robots have legs? Can you simplify this fraction? What is the ratio of robots with legs to robots without legs?
- 6) What is the ratio of robots with black hands to robots without? Can you simplify this ratio? What percentage of robots have black hands?
- 7) "The ratio of grey robots to green robots is 3:2." True or false? How can you prove this?

Create your own similar fraction, percentage and ratio robot questions to share.

ARE 1

2:3      1:5      4:5      4:3:1  
4:6      3:15      12:15      8:6:2

ARE 2

 This bar model shows the ratio 2 : 3 : 4



What fraction of the bar is pink?

$\frac{2}{9}$

What fraction of the bar is yellow?

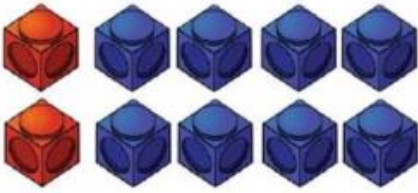
$\frac{3}{9}$  or  $\frac{1}{3}$

What fraction of the bar is blue?

$\frac{4}{9}$

ARE 3

True or False?



- For every red cube there are 8 blue cubes. ✗
- For every 4 blue cubes there is 1 red cube. ✓
- For every 3 red cubes there would be 12 blue cubes. ✓
- For every 16 cubes, 4 would be red and 12 would be blue. ✗
- For every 20 cubes, 4 would be red and 16 would be blue. ✓

ARE 4

The ratio of red counters to blue counters is 1 : 2



What fraction of the counters is blue?

$\frac{1}{2}$	$\frac{1}{3}$	$\frac{2}{3}$ <span style="color: green;">✓</span>
---------------	---------------	--

What fraction of the counters is red?

$\frac{1}{2}$	$\frac{1}{3}$ <span style="color: green;">✓</span>	$\frac{2}{3}$
---------------	--	---------------

ARE 5

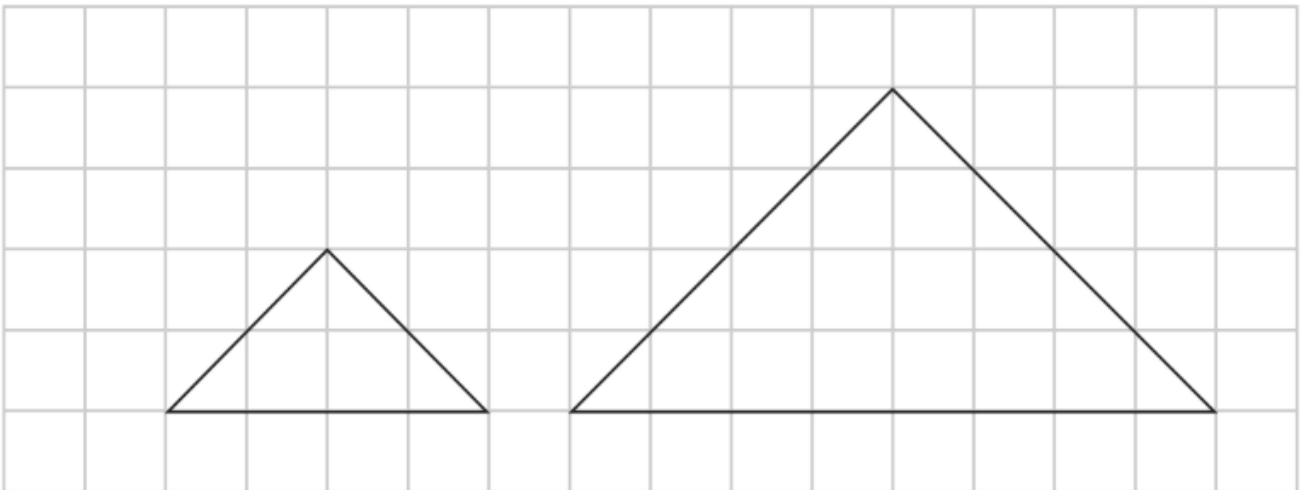
A farmer plants some crops in a field.  
 For every 4 carrots he plants 2 leeks.  
 He plants 48 carrots in total.  
 How many leeks did he plant?  
 How many vegetables did he plant in total?



The ratio is 4:2. If we multiply by 12 we get 48:24 so he planted 24 leeks and there were 72 vegetables planted in total.

ARE 6

Identify the scale factor that been used to enlarge this shape:



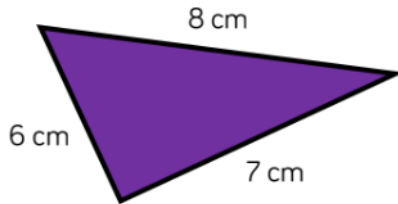
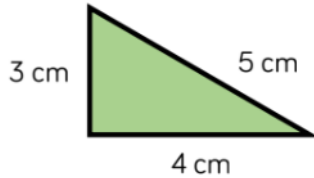
2

ARE 7

Jack says:



The purple triangle is green triangle enlarged by scale factor 3



I do not agree. Jack is confused because each side has increased by 3cm, but that does not mean it has increased by a scale factor of 3 because the measurements have not been multiplied.

ARE 8

Teddy has two packets of sweets.



Do you agree?  
Explain why.

In the first packet, for every one strawberry sweet there are two orange sweets.

In the second packet, for every three orange sweets there are two strawberry sweets.

Each packet contains 15 sweets in total.

Which packet has more strawberry sweets and by how many?

Packet 1

Strawberry	:	Orange	=	Total	
1	:	2	=	3	(need to x5)
5	:	10	=	15	

Packet 2

Strawberry	:	Orange	=	Total	
2	:	3	=	5	(need to x3)
6	:	9	=	15	

Packet 1 has 5 strawberry sweets and Packet 2 has 6 strawberry sweets so Packet 2 has more.

ARE 9

Class 6 do a survey to find out which sport children like best. For every child who said they like rounders, there were three children who liked football and two who said they like swimming best. There were 20 children who said they liked swimming. How many children took part in the survey?

Rounders	:	Football	:	Swimming	=	Total
1	:	3	:	2	=	6 (need to multiply by 10)
10	:	30	:	20	=	60

60 children took part

ARE 10

3. Here are the ingredients needed to make a Smoothie for 4 people:

240ml cranberry juice, 180g raspberries, 120ml milk, 300ml natural yoghurt, 2 tbsp sugar.

- How much cranberry juice would be need to make the smoothie for 8 people?
- How much milk would be needed for 2 people?
- Write the ingredient list for 10 people.

C	:	R	:	M	:	Y	:	S	=	Total
240ml	:	180g	:	120ml	:	300ml	:	2 tbsp	=	4 people
480ml	:	360g	:	240ml	:	600ml	:	4 tbsp	=	8 people
600ml	:	450g	:	300ml	:	750ml	:	5 tbsp	=	10 people

b) half the amount for 2 people, so 60ml of milk

c) For 10 people, multiply by 2.5