

## Wb 18.5.20

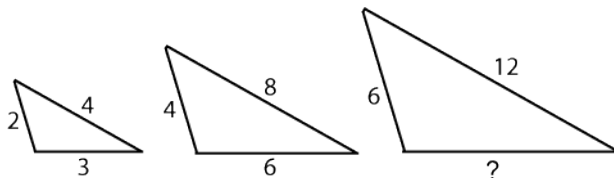
### Math's answers

#### Monday 18.5.20

##### Number the sides - ratio

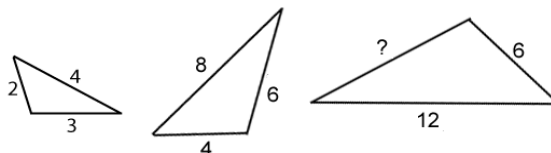
###### Set 1

The triangles in this set are 'similar':



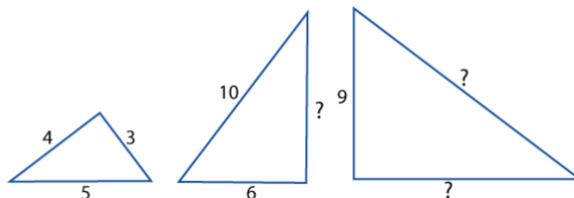
'Similar' means that the triangles are exactly the same shape, but not the same size. The sides are in the same ratio to each other. (Note that these triangles are not drawn to scale.)

What can you say about the length of the side of the third triangle which is marked with a question mark? Of course the triangles could be different ways up, too:



**Hint: For set 2, it might help to draw the triangles so that they sit in the same direction!**

###### Set 2



###### Set 1:

Multiply the lengths of the first triangle by 3. The answer to the missing length in the third triangle is **9**.

###### Set 2:

Multiply the lengths of the first triangle by 2. The answer to the missing length for the second triangle = **8**. For the third triangle, multiply the lengths of the first triangle by 3. The answer to the missing lengths in the third triangle are **15** and **12**.

#### Tuesday 19.5.20

##### Nutty Mixture - ratio

Rachel has a bag of nuts.  
For every cashew nut in the bag, there are two peanuts.  
There are 8 cashews in Rachel's bag. How many peanuts are there?



Marianne also has a bag of nuts.  
In Marianne's bag, for every two cashew nuts, there are three peanuts.  
Marianne's bag contains 12 peanuts in total. How many cashews are in her bag?

Rachel and Marianne decide to mix their bags of nuts together.  
What is the ratio of cashew nuts to peanuts in the mix?

In the first problem, Rachel has double the number of peanuts to cashew nuts. She has 8 cashew nuts in her bag so you double the number of cashew nuts and you get 16 peanuts.

In the second problem, Marianne also has a bag of nuts but this time she has 3 peanuts for every 2 cashew nuts. Marianne has 12 peanuts which is 4 times bigger than 3. So she will have 8 cashew nuts because this is 4 times bigger than 2.

When you add the two bags together they make the following:

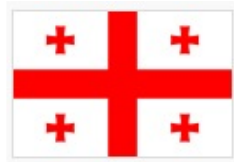
Bag Owner	Cashews	Peanuts
Rachel	8	16
Marianne	8	12
Total	16	28

$$16 : 28 = 4 : 7$$

Because both 16 and 28 can be divided by 4, the ratio in its simplest form is 4 : 7

**Wednesday 20.5.20**

**Flags – angles**



**In order, as above:  
The Jamaican flag**

The flag has 4 triangles (2 isosceles triangles –green; 2 equilateral triangles - black). The green triangles each have 2 acute angles and 1 obtuse angle. The flag has 2 lines of symmetry. There are no parallel lines and no perpendicular ones either.

**The Israeli flag**

The star in the centre of the flag is formed from 2 triangles; with 6 smaller triangles on the outside and 1 pentagon in the middle. It has 8 right angles in the blue strips. The blue strips are 2 rectangles.

**The Georgian flag**

The flag has 5 crosses and 5 rectangles. There are 2 lines of symmetry, 16 right angles and 4 pairs of parallel lines. There are perpendicular lines, 5 dodecagons (the red crosses have 12 sides) and 5 rectangles.

**Thursday 21.5.20**

**Numerically equal - area and perimeter**

I want to draw a square in which the perimeter is equal to the area.  
What size square will I need to draw?



I want to draw a rectangle, that is twice as long as it is wide, in which the perimeter is equal to the area.

What size rectangle will I need to draw?



**Hint: the size of sides in both questions is less than 15cm!**

**Square**

The length of all sides will be 4cm so the perimeter will be:  $4 + 4 + 4 + 4 = 16\text{cm}$ . The area will be:  $\text{length} \times \text{width} = 4 \times 4 = 16\text{cm}^2$

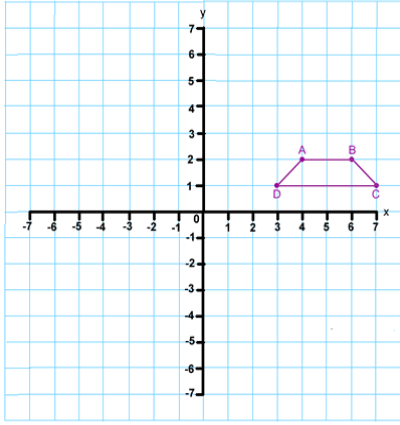
**Rectangle**

The length of the short sides will be 2 x 3cm ; the lengths of the long sides will be 2 x 6cm so the perimeter will be  $3 + 3 + 6 + 6 = 18\text{cm}$ . The area will be:  $\text{length} \times \text{width} = 3 \times 6 = 18\text{cm}^2$

**Here is a set of axes with one shape drawn in the first quadrant:**

What is the shape called? What are the coordinates of A, B, C and D? **Trapezium**

**A (4,2) B (6,2) C (7,1) D (3,1)**



Translate (or move) the shape 3 squares left and 4 squares up. What are its new coordinates? **A (1,6) B (3,6) C (4,5) D (0,5)**. Compare these with the original coordinates. What do you notice? **Notice that the x coordinate of the new number was 3 less than the original coordinate and the y coordinate was 4 more than the original coordinate.**

Start again with the original shape. This time, reflect it in the x axis (the fourth quadrant, below). What are its new coordinates now? **A (4,-2) B (6,-2) C (7,-1) D (3,-1)**.

What do you see when you compare these to the original coordinates? **The x coordinate (first part) has stayed the same but the y coordinate (second part) has decreased and now has got a minus in front of it.**

Can you predict what the new coordinates would be if you reflected these in the y axis (second quadrant, left). **The new coordinates after reflecting in the y axis A (-4,2) B (-6,2) C (-7,1) D (-3,1) and the x coordinate (first part) now has a minus in front of it.**