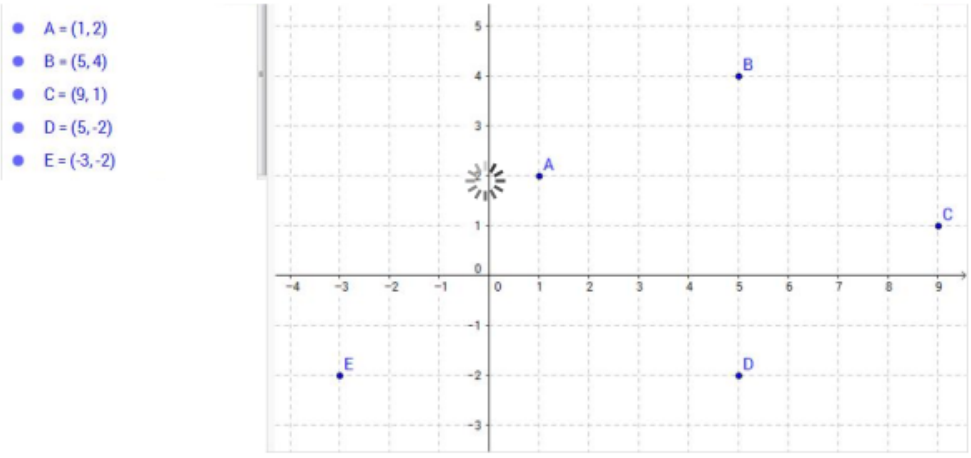
To draw a set of axes you must:

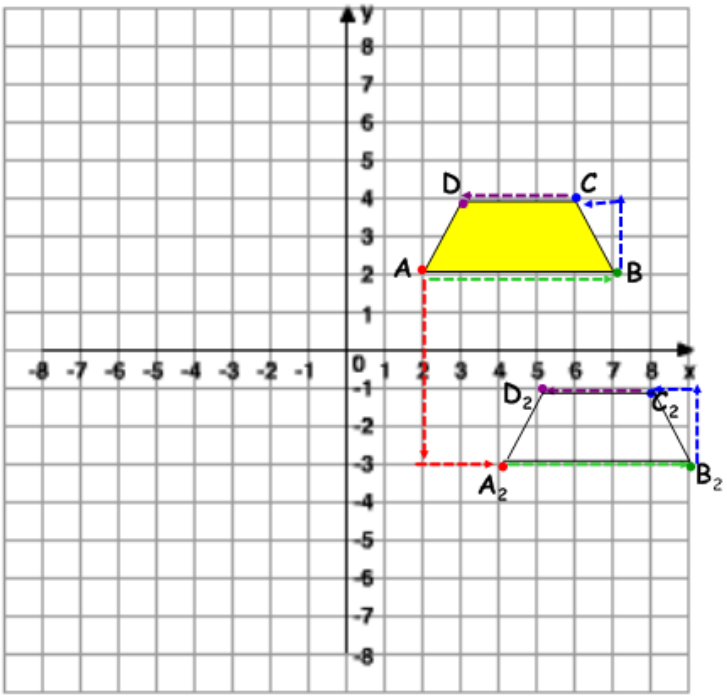
- Use a ruler to draw the axes on the lines of the squares.
- write '0' where the two axes meet.
- number your axes **with the same distance between each number.**
- Write the numbers **on** the lines **not between them**.

Remember the X axis is across (X is A Cross)

In co-ordinates, just like in the alphabet, X comes first: (X,Y)

You can also remember it as 'along the corridor then up the stairs'





To translate the shape:

- label each point with letters
- put you pencil on point A
- count squares in the given directions to find out where point A_2 needs to be.
- Look at the first shape - how do you get from point A to point B?
- Follow the same path from point A_2 to find where point B_2 should be.

Example:

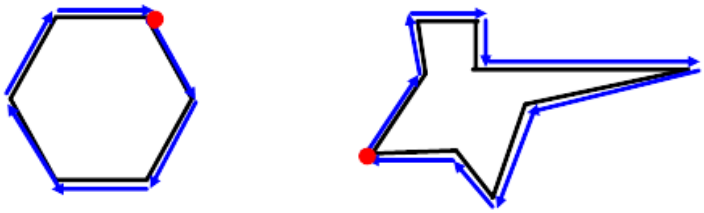
Translate the shape five squares down and two squares right.

- move point A four squares down then two squares right - label this point A_2
- To get from point A to point B go five squares right.
- From point A_2 go five squares right - label this point B_2.
- Repeat for point C.
- Repeat for point D.
- Join the new points to create the translated shape.

Perimeter - the perimeter is the total distance around the outside of a shape: imagine going for a walk along the side of the shape - how far would you have to walk to get back to the start?

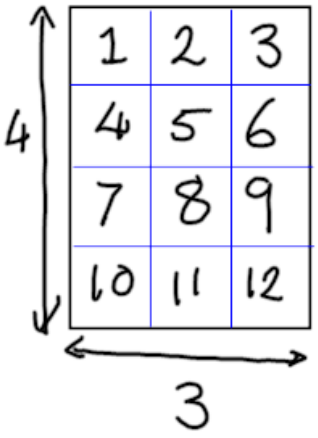
You find the perimeter by adding together all the sides.

Perimeter is measured in mm,cm or m.



Area - area is the space inside a shape: image you are laying a carpet on the shape - how much carpet would you need?
You can find area by counting squares or using formulas.

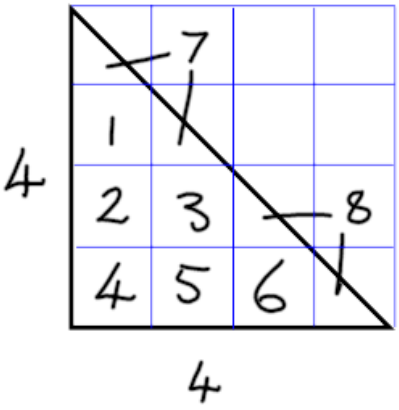
Area is measured in mm^2 , cm^2 or m^2



12 cm^2

Area of a rectangle = width x height

$3_{cm} \times 4_{cm} = 12\ cm^2$



Area = 8 cm^2

Area of a triangle = $\frac{1}{2}$ of width x height

$4_{cm} \times 4_{cm} = 16\ cm^2$

$\frac{1}{2}$ of $16\ cm^2 = 8\ cm^2$

When you write a fraction the top number is called the numerator.

The bottom number is called the denominator.

The denominator shows how many pieces you divide something into.

The numerator shows how many of those pieces you have.

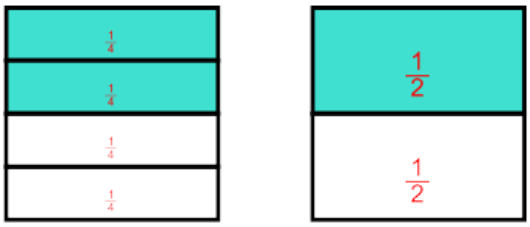
To find a fraction of a shape you can number the squares and colour in.

For example: 2/9 means 2 out of every 9, so label every 9 squares and colour in 2 out of every 9.

1	2	3	4	5	6
7	8	9	1	2	3
4	5	6	7	8	9

This can be used to find an equivalent fraction: I have coloured in 4 out of 18 = 4/18

An equivalent fraction is a fraction which is the same size but written using different numbers e.g. 1/2 = 2/4



To find equivalent fractions you can use multiplication.

If you multiply both the numerator and denominator by the same number you will get an equivalent fraction.

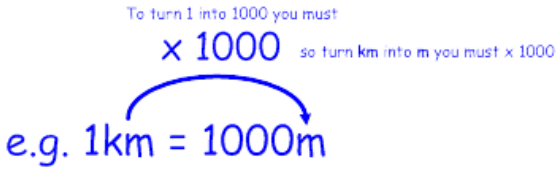
e.g. $\frac{3}{7} \xrightarrow[\times 4]{\times 4} \frac{12}{28}$

This also works for division

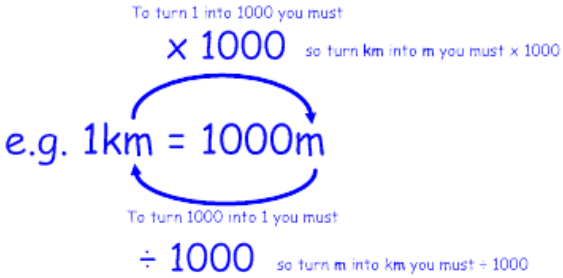
$\frac{16}{48} \xrightarrow[\div 2]{\div 2} \frac{8}{24} \xrightarrow[\div 8]{\div 8} \frac{1}{3}$

To convert between units of measurement first write the conversion rate between them. e.g. 1km = 1000m

Now draw an arrow from one unit to the other and write the calculation you must complete to convert them.



Now draw an arrow going the other way and write the calculation you must complete to convert them.



Now use these calculations to solve a conversion problem.

e.g. 4.56km = _____m *look at conversion rate:*

km $\xrightarrow{\times 1000}$ m = 4.56 x 1000 = 4560 4.56km = 4560m

If you are multiplying or dividing by a power of 10 (a 1 with any number of zeroes after it) then use place-value columns to do this.