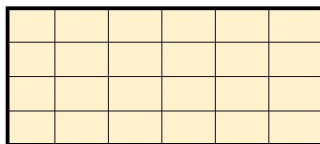
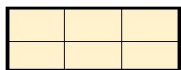


## Recognise enlargement & similarity

Shapes are similar if all pairs of corresponding sides are in the same ratio

These shapes are similar because all sides are increased by the same ratio



Enlargements are similar shapes with a ratio other than 1

## Direct Proportion

As one variable changes the other changes at the same rate



4 cans of pop = £2.40

4 cans of pop = £2.40  
 $\times 0.5$  → 2 cans of pop = £1.20

This is a multiplicative change

4 cans of pop = £2.40  
 $\times 3$  → 12 cans of pop = £7.20

This multiplier is the same in the same way that this would be for ratio

Sometimes this is easiest if you work out how much one unit is worth first  
 e.g. 1 can of pop = £0.60

## Density, Mass, Volume

$$\text{density} = \frac{\text{mass}}{\text{volume}}$$

$$\text{volume} = \frac{\text{mass}}{\text{density}}$$

$$\text{mass} = \text{volume} \times \text{density}$$

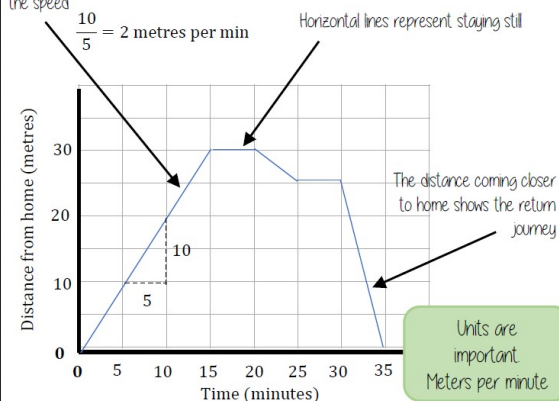


$$\text{volume of prism} = \text{Area of cross section} \times \text{Depth}$$

## Distance - Time graphs

The steeper a gradient the faster the speed

Gradient = speed



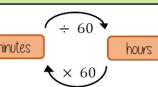
Units are important  
 Meters per minute

## Speed, Distance, Time

Before calculations - make sure you are working in the same units as the speed

Learn or learn how to rearrange the formula for speed, distance and time

Substitute in the variables given

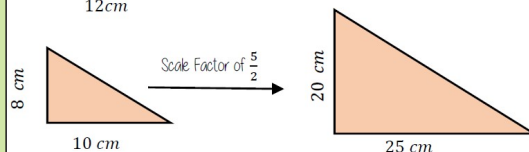
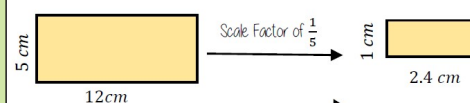


$$\text{time} = \frac{\text{distance}}{\text{speed}}$$

$$\text{distance} = \text{speed} \times \text{time}$$

## Positive fractional scale factor

With a scale factor between 0 and 1 it makes the shape smaller



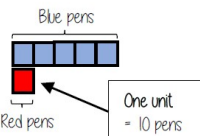
## Finding a value given 1n (or n:1)

Inside a box are blue and red pens in the ratio 5:1  
 If there are 10 red pens how many blue pens are there?

### Model the Question

Blue : Red  
 5 : 1

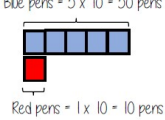
□ = one part  
 = 10 pens



### Put back into the question

Blue : Red

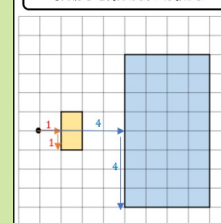
$\times 10$  5 : 1  $\times 10$   
 50 : 10



There are 50 Blue Pens

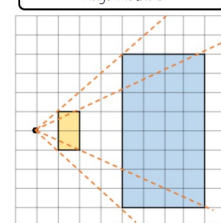
## Enlarge a shape from a point

### Scaled distances method



Scale the distance between the point of enlargement and each corresponding vertices

### Rays method



Multiply the distance from the centre of corresponding vertices by the scale factor along the ray

## Mathematical Language:

Convert  
 Corresponding  
 Direct proportion  
 Enlarge  
 Image  
 Inverse proportion  
 Mass  
 Origin  
 Proportion  
 Ratio  
 Scale Factor  
 Similar Shapes  
 Substitute  
 Volume

MATHS IS  
 EVERYWHERE