

### REMEMBER TO ROUND THE DECIMALS!!!

E.g. 1.27969 would round to 1.28

#### Similarity and Congruence

##### Terms

**Congruent Shapes** Similar shapes that have been moved in some way

**Rotation** The shape has been turned over

**Reflection** The shape has been flipped over as if it was reflected in a mirror

**Translation** The shape keeps its same orientation, but it has been simply moved

#### Probability

#### Radicals and Pythagoras

Pythagoras Theorem:  $a^2 + b^2 = c^2$

#### Statistics

##### Types of Data

**Categorical** A collection of information that is divided into groups.

**Numerical** Data in the form of numbers.

##### Terms

**Range** Biggest number - smallest number

**Terms** Sum of all values divided by the number of values.

**Median** The middle number of a numerical data set. If there are 2 medians use this formula:  
 $(a+b) / 2$

**Mean** Sum of all values divided by the number of values.

**Mode** The number with the highest frequency (most occurring).

/ = divide



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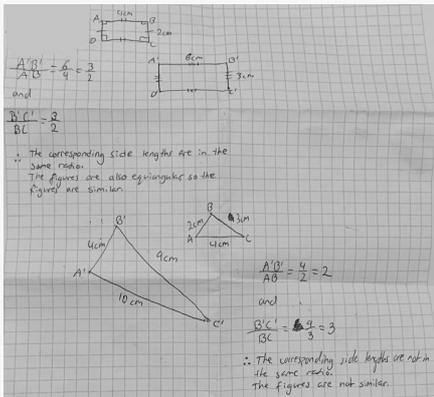
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### Similarity and Congruence



$$\frac{A'B'}{AB}$$

$$\frac{B'C'}{BC}$$

### Coordinate Geometry

Distance  $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$   
 Formula:

Midpoint  $((x_1 + x_2) / 2, (y_1 + y_2) / 2)$   
 Formula:

Gradient  $y_2 - y_1 / x_2 - x_1$   
 Formula:

/ = fraction (divide)

### Distance Formula

Distance formula

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$d$  = distance  
 $(x_1, y_1)$  = coordinates of the first point  
 $(x_2, y_2)$  = coordinates of the second point

### Midpoint Formula

The Midpoint Formula

$$M = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

Where:  
 $M$  = Midpoint  
 $x_1, y_1$  = x-coordinates  
 $x_2, y_2$  = y-coordinates

### Gradient Formula

Slope of a line

$$m = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$$

$m$  = slope  
 $(x_1, y_1)$  = coordinates of first point in the line  
 $(x_2, y_2)$  = coordinates of second point in the line

### Formulae

$$a = 10, b = 5, c = 15$$

Find  $d$  if  $d = ab + c$

$$d = 10 \times 5 + 15 = 65$$

### Formulae

$$z = xy + d$$

$$\frac{z}{y} = x + \frac{d}{y}$$

$$x = \frac{z}{y} - \frac{d}{y}$$

### Trigonometry

Sine O/H

$\theta = \Delta$

Cosine A/H

Tangent O/A

When finding  $\theta$  (Delta) you use  $\text{Sin}^{-1}$ ,  $\text{Cos}^{-1}$  and  $\text{Tan}^{-1}$ . When you type it into the calculator press shift.

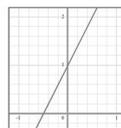
### Graphing Lines From Equations

$y = mx + c$  is the general equation of any straight line where  $m$  is the **gradient** of the line (how steep the line is) and  $c$  is the **y-intercept** (the point in which the line crosses the y-axis).  $y = mx + c$  is a **linear equation**.

E.g.

Let's look at the line  $y = 2x + 1$ .

This has a **gradient of 2** and a **y-intercept of 1**, the coordinate (0, 1).



$$y = mx + c$$

### Measurement