

GCSE Knowledge Organiser: Mathematical Requirements

Key terms	Significant figures	Graphs	
< is used to represent when one number is less than another i.e. 3 < 15	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>0.00702</p> </div> <div style="text-align: center;"> <p>72800</p> </div> </div>		<p>Plot the independent variable on the x-axis and the dependent variable on the y-axis.</p> <p>If there is a pattern shown you will then draw a line of best fit.</p>
<< is used to represent when one number is much less than another i.e. 3 << 1,500			
> is used to represent when one number is more than another i.e. 15 > 3			
>> is used to represent when one number is much more than another i.e. 1,500 >> 3	Calculating means		Lines of best fit
\propto means that two quantities are directly proportional. As one increases, the other increases at a constant rate.	<p>Data set : 12, 8, 11, 9</p> <p>Count: 4</p> <p>Sum: 12 + 8 + 11 + 9 = 40</p>	<p>Mean = Sum / Count</p> <p>Mean = 40 / 4</p> <p>Mean = 10</p>	<p>Lines should be drawn through as many points as possible, ignoring any points outside the pattern (anomalies)</p>
The mean is the average of a set of numbers, found by adding all of the numbers together and dividing by the sample size	Standard form		
Significant figures are the digits within a very large or small number that are meaningful and contribute to its precision	<p>$3 \times 10^5 = 300\,000$</p> <p>$3 \times 10^4 = 30\,000$</p> <p>$3 \times 10^0 = 3$</p> <p>$3 \times 10^{-2} = 0.03$</p>	<p>Large or small numbers can be written as $A \times 10^n$</p> <p>A multiplied by n to a factor of 10 gives the original value.</p>	
Standard form is a way of representing very large or small numbers. i.e. 3×10^6 is 3,000,000 and 3×10^{-6} is 0.000003	Converting units		<p>If the relationship is a straight line, use a ruler to draw this.</p>
The x-axis is the horizontal part of a graph (this runs 'along the bottom')			<p>If the line of best fit is a curve, draw this as a sweeping curve, not sketched.</p>
The y-axis is the vertical part of a graph (this runs 'up the side')			Gradient of a straight line
A line of best fit is a line a line that goes roughly through the middle of all the points on a graph.			Gradient of a curved line
An anomaly is a result is a that doesn't fit in with the pattern of the other results. It will be far away from the line of best fit.			
The gradient of a line shows the slope of a linear graph. A steeper line will have a higher gradient.			
A tangent is a straight line drawn to meet the curve of a line of best fit at one specific point only.	<p>To move to a smaller unit, multiply by 1,000. To move to a larger unit, divide by 1,000.</p>		
1 micrometre (μm) is 1,000 times smaller than a millimetre (mm) but 1,000 larger than a nanometre (nm)	<p>Found by dividing the change on the y-axis by the change on the x-axis this shows the relationship between the variables</p>		