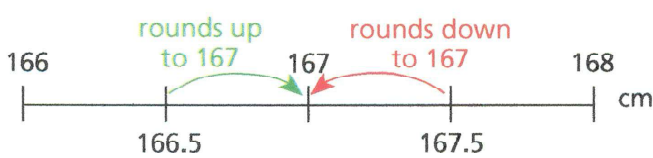
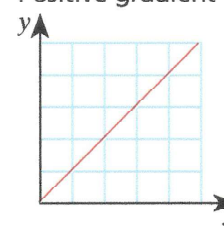
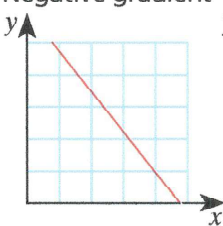
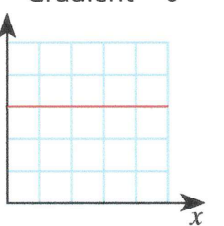
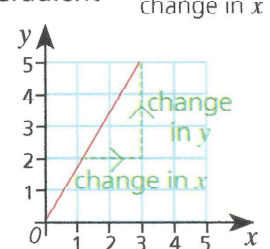


Key facts and vocabulary

Number

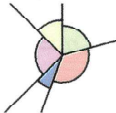
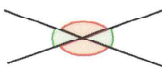
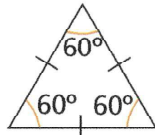
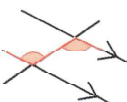
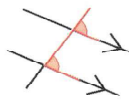
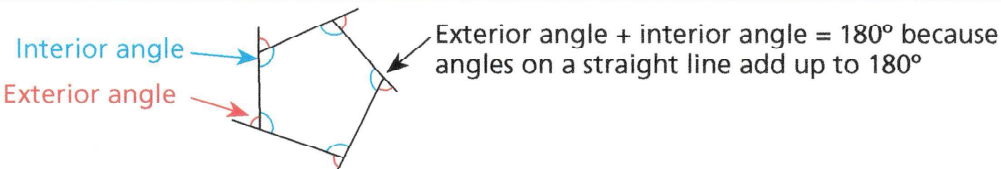
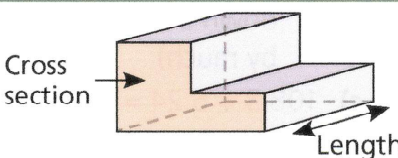
Error interval	The true value can be up to half a unit either side of the measurement  $166.5 \leq \text{length} < 167.5 \text{ cm}$
Percentage change	Percentage change = $\frac{\text{amount of increase or decrease}}{\text{original value}} \times 100$ Repeated percentage change: New value = original value $\times$ multiplier^x (where x is the number of changes)
Percentage increase and decrease	To increase a value by 20%, multiply by the multiplier $\frac{100 + 20}{100} = \frac{120}{100} = 1.2$ To decrease a value by 30%, multiply by the multiplier $\frac{100 - 30}{100} = \frac{70}{100} = 0.7$ To find the original value, use the multiplier and inverse operations
Rounding to significant figures	4852 rounded to 1 s.f. is 5000 0.00649 rounded to 1 s.f. is 0.006 4852 rounded to 2 s.f. is 4900 0.00649 rounded to 2 s.f. is 0.0065

Algebra

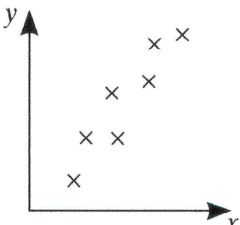
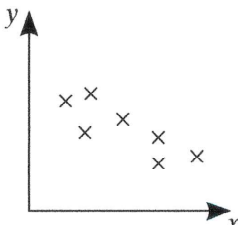
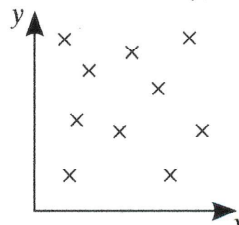
Arithmetic sequence	Terms go up or down by the same amount (common difference) each time 2, 5, 8, 11, 14, ... Common difference +3 5, 3, 1, -1, -3, ... Common difference -2
Direct proportion	As one quantity increases, the other quantity increases at the same rate, e.g. when x doubles, y doubles $y = kx$ k is a constant (a number that does not change)
Equation of a straight line	$y = mx + c$ where m is the gradient and c is the y-intercept
Expand	Multiply every term inside the bracket by the term outside the bracket $3(x + 4) = 3x + 12$ $5(2y - 1) = 10y - 5$
Geometric sequence	Each term is multiplied or divided by the same number to get the next term 2, 4, 8, 16, 32, ... Each term is multiplied by 2 1000, 100, 10, 1, 0.1, ... Each term is divided by 10
Gradient	Measure of the steepness of a line Positive gradient  Negative gradient  Gradient = 0  Gradient = $\frac{\text{change in } y}{\text{change in } x}$ 
Inverse proportion	As one quantity increases, the other quantity decreases at the same rate, e.g. when x doubles, y halves $y = \frac{k}{x}$ k is a constant

n^{th} term	Formula involving n that generates the terms in a sequence; substitute $n = 1$ to find the 1st term, $n = 2$ to find the 2nd term, and so on	Common difference ↓ n^{th} term = $2n + 1$ ↑ The constant
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Geometry

Angle bisector	Cuts an angle in half
Angle facts	Angles at a point  Angles at a point add up to 360° Vertically opposite  Vertically opposite angles are equal Equilateral triangle  All angles are 60° Isosceles triangle  Two equal angles at base of equal sides
Angle sum	Angles in: - a triangle sum to 180° - a quadrilateral sum to 360° - an n-sided polygon sum to $(n - 2) \times 180^\circ$
Angles in parallel lines	 Alternate angles make a 'Z' shape; they are equal  Corresponding angles make an 'F' shape; they are equal
Exterior angles	
Perpendicular bisector	Cuts a line in half, at right angles
Surface area	Total area of all faces of a 3D shape
Volume of a prism	Volume of prism = area of cross section $\times$ length 

Statistics

Correlation	Positive (as one variable increases, the other increases) 	Negative (as one variable increases, the other decreases) 	None (no pattern or relationship) 
Mean	$\frac{\text{Total sum of values}}{\text{Number of values}}$		
Median	Middle value when values are in order In a set of n values, the median is the $\frac{n+1}{2}$ th value		
Mode	Most common value; the value with highest frequency		
Range	Highest value – lowest value		