



Key Words

Estimate	Roughly calculate the mean by finding a midpoint
Circumference	The perimeter of a circle
Radius	The distance between the centre of a circle and the circumference that passes through the diameter
Polygon	A straight sided shape

Key Information



Estimate the mean

Javelin distances in metres	Frequency	Midpoint	Frequency × midpoint
$5 \leq d < 10$	1	7.5	$1 \times 7.5 = 7.5$
$10 \leq d < 15$	8	12.5	$8 \times 12.5 = 100$
$15 \leq d < 20$	12	17.5	$12 \times 17.5 = 210$
$20 \leq d < 25$	10	22.5	$10 \times 22.5 = 225$
$25 \leq d < 30$	3	27.5	$3 \times 27.5 = 82.5$
$30 \leq d < 35$	1	32.5	$1 \times 32.5 = 32.5$
$35 \leq d < 40$	1	37.5	$1 \times 37.5 = 37.5$
TOTAL	36		695

Estimated mean = $695 \div 36 = 19.3 \text{ m}$ (to 1 d.p.)



Rearranging Formulae

Rearrange the formula to make **a** the subject

This means we want to rearrange the formula so it says **a =**

$$b = 5a + 21$$

$$\begin{array}{r} -21 \\ -21 \end{array}$$

$$b - 21 = 5a$$

$$\begin{array}{r} +5 \\ +5 \end{array}$$

$$\frac{b - 21}{5} = a$$

Our answer should say ... $a = \frac{b - 21}{5}$



3 Part Ratio

Share £20 in the ratio **2:5:3**

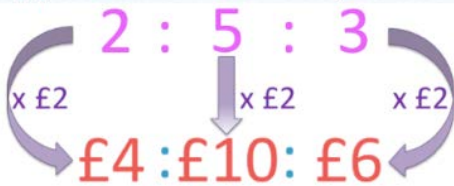
1) Find the **total number of parts**

$$2 + 5 + 3 = 10$$

2) Divide the **amount** by the **total number of parts**

$$£20 \div 10 = £2 = 1 \text{ part}$$

3) Multiply each number in the **ratio** by the value of **1 part**



Percentage Change

$$\text{Percentage change} = \frac{\text{Change}}{\text{Original}} \times 100$$



e.g A car was bought for £4000 and two years later was sold for £3500.

Calculate the percentage decrease in the value of the car.

$$\frac{500}{4000} \times 100$$

$$0.125 \times 100$$

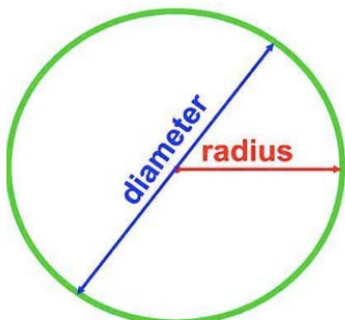
$$\underline{\underline{12.5\%}}$$

As the value decreased by £500

Alternate terms the question ask for
 Percentage increase
 Percentage decrease
 Percentage profit
 Percentage loss
 You would use the same formula



Area and Circumference



Area of a circle = $\pi \times \text{radius}^2$

Circumference of a circle = $\pi \times \text{diameter}$

remember that the **diameter = 2 x radius**



Angles

We can work out the **angle sum** of any polygon by splitting it into triangles. Remember that the angles in a triangle = 180° .

<p>Triangle</p> <p>$1 \times 180^\circ = 180^\circ$</p>	<p>Quadrilateral</p> <p>$2 \times 180^\circ = 360^\circ$</p>	<p>Pentagon</p> <p>$3 \times 180^\circ = 540^\circ$</p>
<p>Hexagon</p> <p>$4 \times 180^\circ = 720^\circ$</p>	<p>Heptagon</p> <p>$5 \times 180^\circ = 900^\circ$</p>	<p>Octagon</p> <p>$6 \times 180^\circ = 1080^\circ$</p>

If the polygon has **n sides**, there will be **(n - 2)** triangles inside.

$$\text{Angle sum} = (n - 2) \times 180$$