

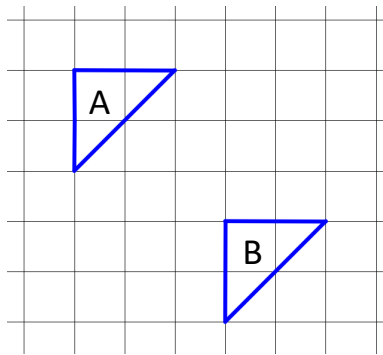
Maths – 9 Core: Spring 1

1 Shape – Transformations

Translations move things.

They are described with **vectors**.

$$\begin{pmatrix} a \\ b \end{pmatrix} \begin{matrix} \leftarrow + \text{right} - \text{left} \\ \leftarrow + \text{up} - \text{down} \end{matrix}$$



Describe the transformation that maps A to B.

Translation, $\begin{pmatrix} 3 \\ -3 \end{pmatrix}$

2 Algebra – Expressions and brackets

Expand and simplify:

$$2(3x + 5) = 6x + 10$$

$$(x + 4)(x + 6)$$

$$= x^2 + 6x + 4x + 24$$

$$= x^2 + 10x + 24$$

Factorise:

$$10x + 4 = 2(5x + 2)$$

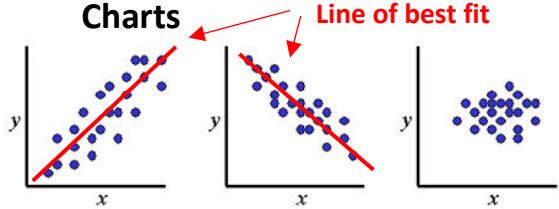
$$x^2 + 3x = x(x + 3)$$

$$8x^2 + 6x = 2x(4x + 3)$$

Expand: take out the brackets

Factorise: put the brackets in

3 Data – Scatter Graphs and Pie Charts



Positive correlation Negative correlation No correlation

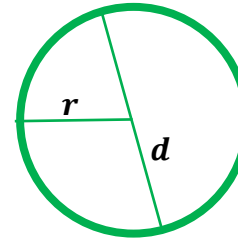
Sport	Frequency
Football	40
Rugby	20
Tennis	10
Hockey	10



4 Shape – Circles

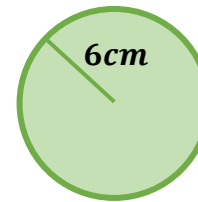
$$A = \pi r^2$$

$$C = \pi d$$



$$A = \pi \times 6^2 = 36\pi = 113.1 \text{ cm}^2$$

$$C = \pi \times d = \pi \times 12 = 12\pi = 37.7 \text{ cm}$$

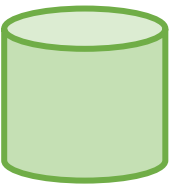
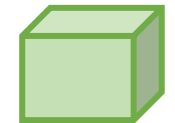
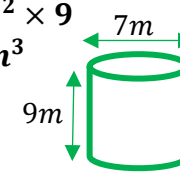


5 Shape – Volume

$$V = A \times \text{length}$$

$$A = \text{cross-section area}$$

$$V = \pi r^2 \times l = \pi \times 3.5^2 \times 9 = 346.4 \text{ m}^3$$



1	2	3	4	5
637 638	160 – 163	427 – 429 453 – 454	434 – 436 539 – 541	570 – 572