

27th May



Corbettmaths

AB is a straight line

The coordinates of A are $(-3, 15)$ The coordinates of B are $(-9, -18)$

Work out the coordinates of the midpoint of AB

$$\underline{\underline{\left(-6, -\frac{3}{2}\right)}}$$

Show that $(2x - 3)$ is a factor of

$$4x^3 + 20x^2 - 53x + 21 = f(x)$$

$$f\left(\frac{3}{2}\right) = \frac{27}{2} + 45 - \frac{159}{2} + 21 = 0$$
$$\Rightarrow 2x - 3 \text{ factor.}$$

Hence, factorise fully

$$4x^3 + 20x^2 - 53x + 21$$

$$= (2x - 3)(2x^2 + 13x - 7)$$
$$= \underline{\underline{(2x - 3)(2x - 1)(x + 7)}}$$

Find the transformation matrix that is equivalent to

- a reflection in the x-axis $(1, 0) \rightarrow (1, 0)$
 $(0, 1) \rightarrow (0, -1)$

followed by

- a rotation, 180° about the origin

$$(1, 0) \rightarrow (-1, 0)$$
$$(0, 1) \rightarrow (0, -1)$$

$$\begin{pmatrix} -1 & 0 \\ 0 & -1 \end{pmatrix} \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix} = \underline{\underline{\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}}}$$