



30th April

Solve $2x^2 + 15x - 38 = 0$

$$(2x + 19)(x - 2) = 0$$

$$x = -\frac{19}{2} \quad \text{or} \quad x = 2$$

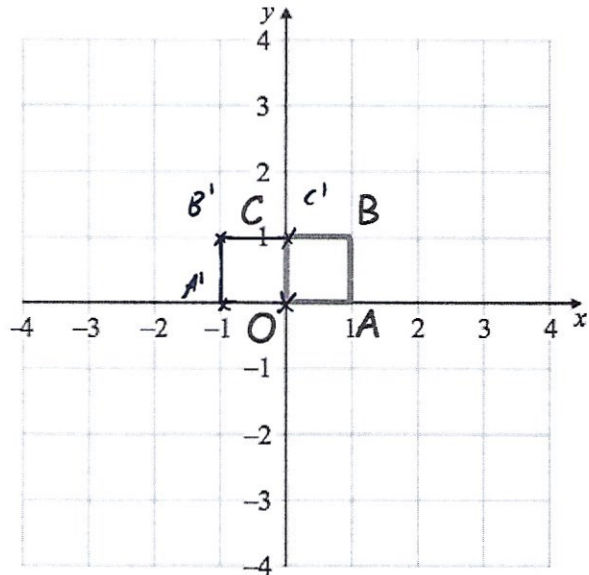
OABC is transformed by the matrix

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

to give OA'B'C' $\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} 0 \\ 0 \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}$

Draw and label OA'B'C' $\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} 1 \\ 0 \end{pmatrix} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$

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



Describe the transformation fully.

Reflection in the y-axis

The first five terms of a sequence are shown below.

$$80, 76, 70, 62, 52 \dots$$

$$\begin{matrix} -4 & -6 & -8 & -10 \\ -2 & -2 & -2 \end{matrix}$$

Work out an expression for the nth term of the sequence

$$a = -1$$

$$-3 + b = -4 \quad b = -1$$

$$a + b + c = 80 \quad c = 82$$

$$-n^2 - n + 82$$

$$y = \frac{4}{5}x^{10} + 2x^7 + \frac{4}{x^3}$$

Work out $\frac{dy}{dx}$

$$y = \frac{4}{5}x^{10} + 2x^7 + 4x^{-3}$$

$$\frac{dy}{dx} = 8x^9 + 14x^6 - 12x^{-4}$$

$$= 8x^9 + 14x^6 - \frac{12}{x^4}$$