

19th September



Corbettmaths

OABC is transformed by the matrix

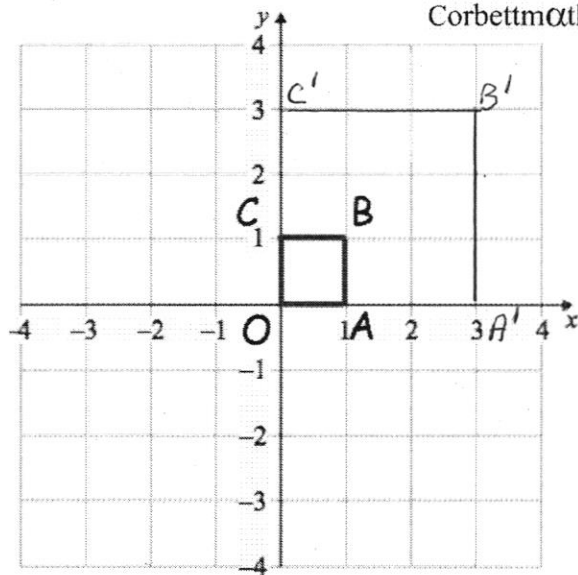
$$\begin{pmatrix} 3 & 0 \\ 0 & 3 \end{pmatrix}$$

to give OA'B'C'

Draw and label OA'B'C'

$$\begin{pmatrix} 3 & 0 \\ 0 & 3 \end{pmatrix} \begin{pmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{pmatrix} = \begin{pmatrix} 0 & 3 & 3 & 0 \\ 0 & 0 & 3 & 3 \end{pmatrix}$$

O A' B' C'



Describe the transformation fully.

Enlargement s.f. 3
centre (0,0).

Work out the rate of change of y with respect to x at the point on the curve

$$y = \frac{1}{x^2} + x \text{ where } x = 2$$

$$y = x^{-2} + x$$

$$\frac{dy}{dx} = -2x^{-3} + 1 = 1 - \frac{2}{x^3}$$

$$= \frac{3}{4}$$

when $x = 2$

A circle has centre C and equation

$$x^2 + y^2 + 12x - 4y - 10 = 0$$

$$x^2 + 12x + y^2 - 4y = 10$$

$$(x+6)^2 - 36 + (y-2)^2 - 4 = 10$$

$$(x+6)^2 + (y-2)^2 = 50$$

Find the centre of the circle

$$(-6, 2)$$

Find the radius of the circle

$$\sqrt{50} \quad (5\sqrt{2})$$