

21st July

Corbettmaths

Find the range of values of x that satisfies both

$$3(x+1) \leq 32 \quad \text{and} \quad x^2 < 144$$

$$x+1 \leq \frac{32}{3} \quad -12 < x < 12$$

$$x \leq \frac{29}{3}$$

$$\underline{-12 < x \leq \frac{29}{3}}$$

$$x : y = 2 : 11$$

$$y : z = 3 : 4$$

Write x in terms of z

$$\frac{x}{y} = \frac{2}{11}$$

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

$$\frac{x}{z} = \frac{x}{y} \times \frac{y}{z} = \frac{2}{11} \times \frac{3}{4} = \frac{3}{22}$$

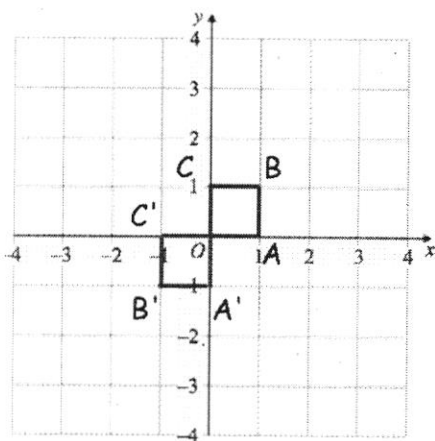
$$\Rightarrow \underline{x = \frac{3}{22}z}$$

Expand and simplify

$$\left(x^2 + \frac{1}{x}\right)\left(x - \frac{1}{x}\right)$$

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

OABC is mapped to OA'B'C' under transformation matrix M



Work out matrix M

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

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

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