

# m8 = 5 days to go!

5 There are 20 boys and 12 girls in a chess club.

Three fifths of the boys have been members for over 2 years.

Two thirds of the girls have been members for over 2 years.

$$\frac{3}{5} \text{ of } 20 = 12$$

$$\frac{2}{3} \text{ of } 12 = 8$$

What is the probability that a child chosen at random from the chess club has been a member for over 2 years?

$$12 + 8 = 20$$

$$\text{so } \frac{20}{32} = \frac{5}{8}$$

Answer \_\_\_\_\_ [3]

$y$  is inversely proportional to the square of  $x$ .

When  $y = 200$ ,  $x = 2$

(a) Find an equation connecting  $y$  and  $x$ .

(b) Work out the value of  $y$  when  $x = 5$

(c) Work out the value of  $x$  when  $y = 50$

$$y \propto \frac{1}{x^2}$$

so

$$y = \frac{k}{x^2}$$

$$200 = \frac{k}{4}$$

$$k = 800$$

rewrite  $\rightarrow$

$$\text{a) } y = \frac{800}{x^2}$$

$$\text{b) } y = \frac{800}{5^2}$$

$$y = \frac{800}{25}$$

$$y = 32$$

$$\text{c) } y = \frac{800}{x^2}$$

$$50 = \frac{800}{x^2}$$

$$50x^2 = 800$$

$$x^2 = 16$$

$$x = 4$$

\* Multiply each by  $-2$  from COE  
 \* Multiply by negative changes direction

2.

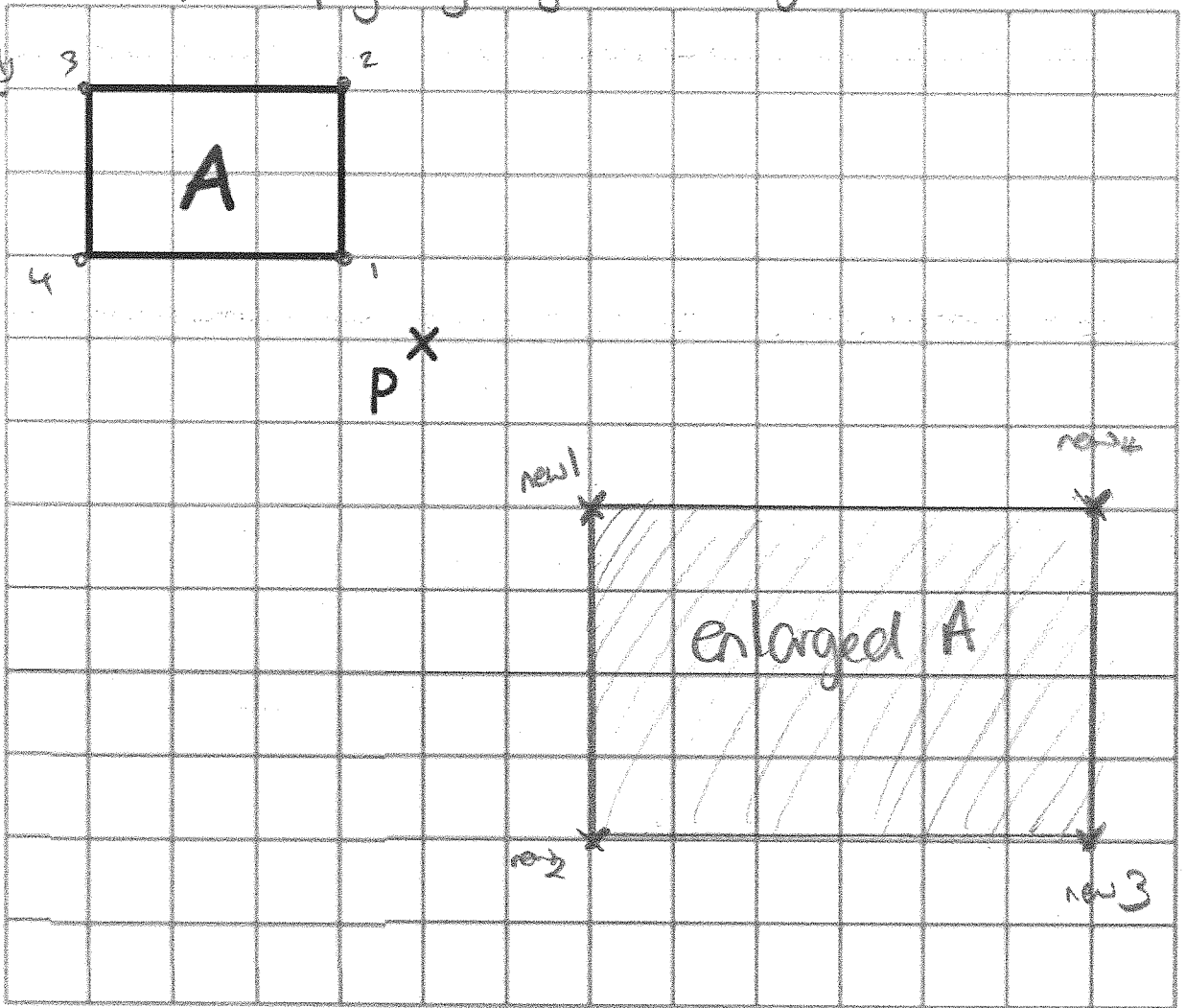
OE to point

$$\begin{pmatrix} 1L \\ 1U \\ (2R) \\ (2D) \end{pmatrix}$$

$$\begin{pmatrix} 1L \\ 3U \\ (2R) \\ (6D) \end{pmatrix}$$

$$\begin{pmatrix} 4L \\ 3U \\ (8R) \\ (6D) \end{pmatrix}$$

$$\begin{pmatrix} 4L \\ 1U \\ (8R) \\ (2D) \end{pmatrix}$$



Enlarge shape A by scale factor  $-2$ , using the point P as centre of enlargement.

7. The circle below has centre  $(0, 0)$ .  
The point  $(-15, 8)$  is a point on the circle.

$$x^2 + y^2 = r^2$$

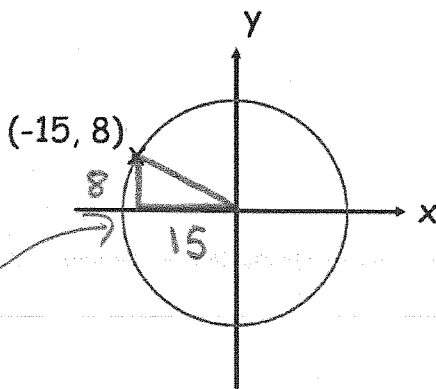
(3)

Find the equation of the circle.

Use pythagoras to find radius

$$15^2 + 8^2 = r^2$$

$$289 = r^2$$



$$x^2 + y^2 = 289$$

(3)