

21st March

Corbettmaths

A circle has a radius of 12

The centre of the circle is $(-7, -2)$

Write down the equation of the circle.

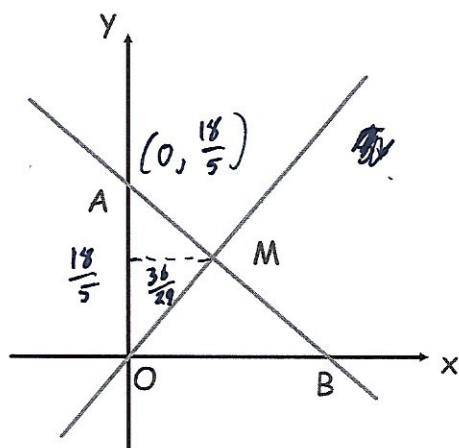
$$(x+7)^2 + (y+2)^2 = 144$$

Prove that the sum of three consecutive even numbers is always a multiple of 6

$$2n + (2n+2) + (2n+4)$$

$$6n + 6$$

$$6(n+1) \quad \text{QED}$$

The line l_1 passes through the points A and B. It has equation $2x + 5y = 18$.The line l_2 is perpendicular to l_1 and passes through the origin, O, and M.Find the equation of line l_2

$$5y = -2x + 18 \quad y = -\frac{2}{5}x + \frac{18}{5}$$

$$m = -\frac{2}{5}$$

$$y = \frac{5}{2}x$$

Find the area of triangle OAM.

$$5\left(\frac{5}{2}x\right) = -2x + 18$$

$$\frac{25}{2}x = -2x + 18$$

$$\frac{29}{2}x = 18$$

$$x = \frac{36}{29}$$

$$\frac{1}{2} \times \frac{36}{29} \times \frac{18}{5}$$

$$= \frac{324}{145}$$

Solve $\frac{8^{5-3x}}{16^{x+1}} = 32$

$$\frac{(2^3)^{5-3x}}{(2^4)^{x+1}} = 2^5$$

$$\frac{2^{15-9x}}{2^{4x+4}} = 2^5$$

$$2^{11-13x} = 2^5$$

$$11-13x = 5$$

$$x = \frac{6}{13}$$