

14th September

Corbettmaths

Factorise fully $98 - 72x^2$

$$= 2(49 - 36x^2)$$

$$= \underline{2(7+6x)(7-6x)}$$

$$y = x^3 + 4x$$

Work out the values of x at which the rate of change of y with respect to x is 31.

$$\frac{dy}{dx} = 3x^2 + 4$$

$$3x^2 + 4 = 31$$

$$3x^2 = 27$$

$$x^2 = 9$$

$$x = \underline{\pm 3}$$

AB is a diameter of a circle C.
Q is the centre of the circle

A has coordinates $(-2, 1)$ and B has coordinates $(8, 7)$.

Find the equation of C

$$Q(3, 4)$$

$$AQ = \sqrt{5^2 + 3^2} = \sqrt{34}$$

$$\underline{(x-3)^2 + (y-4)^2 = 34}$$

Solve the simultaneous equations

$$2x + 3y + 2z = 40 \quad (1)$$

$$6x + 6y + 6z = 108$$

$$3x + 2y - 2z = 20 \quad (3)$$

$$\rightarrow x + y + z = 18 \quad (2)$$

$$(1) + (3) \quad 5x + 5y = 60$$

$$(2) \times 2 + (3) \quad 5x + 4y = 56$$

$$\underline{y = 4}$$

$$\underline{x = 8}$$

$$\underline{z = 6}$$