



Show the equation

$$x^3 + 6x = 25$$

has a solution between 2 and 3.

$$\text{let } f(x) = x^3 + 6x - 25$$

$$f(2) = -5$$

$$f(3) = 20$$

Since there is a change of sign, there is a solution. ($f(x)$ is a continuous function).

Show the equation

$$x^3 + 6x = 25$$

can be rearranged to give

$$x = \sqrt[3]{25 - 6x}$$

$$x^3 = 25 - 6x$$

$$x = \sqrt[3]{25 - 6x}$$

Starting with $x_0 = 0$

use the iteration formula

$$x_{n+1} = \sqrt[3]{25 - 6x_n}$$

three times to find an estimate for the solution of $x^3 + 6x = 25$

$$x_1 = 2.9240\dots$$

$$x_2 = 1.9535\dots$$

$$x_3 = 2.368$$

Shown is sector OAB.

O is the centre of the circle.

AB is a chord with length 10.35cm

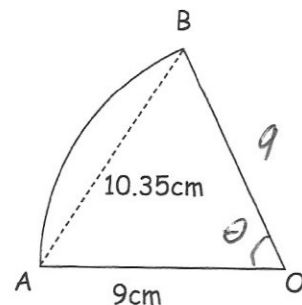
Find the area of the sector OAB.

$$\cos \theta = \frac{9^2 + 9^2 - 10.35^2}{2 \times 9 \times 9}$$

$$\theta = 70.2^\circ$$

$$\frac{70.2}{360} \times \pi \times 9^2 =$$

$$49.62 \text{ cm}^2$$



The graph $y = x^2 + 9x - 10$ has a line of symmetry.

Write down the equation of the line of symmetry.

$$y = (x + 4.5)^2 - 20.25 - 10$$

$$y = (x + 4.5)^2 - 30.25$$

$$x = -4.5$$