22nd March
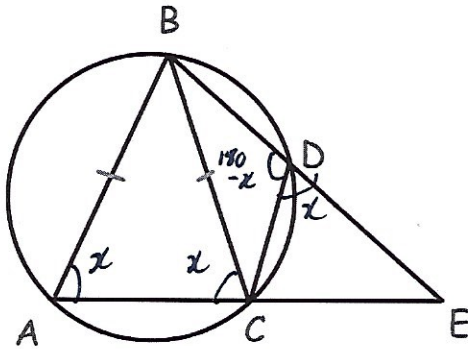
Write $(1 + 4\sqrt{3})(5 - \sqrt{3})$ in the form

$a + b\sqrt{3}$ where **a** and **b** are integers.

$$5 - \sqrt{3} + 20\sqrt{3} - 12$$

$$= \cancel{} -7 + 19\sqrt{3}$$

AB = BC
ACE and BDE are straight lines.

Prove that angle BCA = CDE

$\angle BAC = \angle BCA = x$ (isosceles triangle)

$\angle BDC = 180 - x$ (cyclic quadrilateral)

$\angle CDE = x$ (straight line)

$\therefore \quad \angle BCA = \angle CDE$

A circle has centre C and equation
$$x^2 - 2x + y^2 + 6y - 10 = 0$$
$$x^2 + y^2 - 2x + 6y - 10 = 0$$

$$(x - 1)^2 + (y + 3)^2 - 1 - 9 - 10 = 0$$

$$(x - 1)^2 + (y + 3)^2 = 20$$

Find the centre of the circle

$$(1, -3)$$

Find the radius of the circle

$$\sqrt{20} = 2\sqrt{5}$$