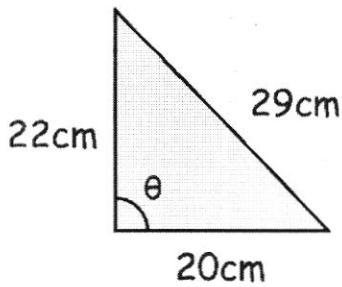


8th October



Corbettmaths

Find θ

$$29^2 = 20^2 + 22^2 - 2 \times 20 \times 22 \cos \theta$$

$$841 = 884 - 880 \cos \theta$$

$$880 \cos \theta = 43$$

$$\cos \theta = 0.0489$$

$$\theta = 87.2^\circ$$

Solve $\sqrt{200} + \sqrt{18} = \sqrt{y} + \sqrt{98}$

$$10\sqrt{2} + 3\sqrt{2} = \sqrt{y} + 7\sqrt{2}$$

$$6\sqrt{2} = \sqrt{y}$$

$$\underline{y = 72}$$

$$f(x) = 2x^3 + 17x^2 + 27x - 18$$

Show that $(2x - 1)$ is a factor of $f(x)$

$$f\left(\frac{1}{2}\right) = \frac{1}{4} + \frac{17}{4} + \frac{54}{4} - \frac{72}{4} = 0$$

$$\Rightarrow \underline{2x-1 \text{ factor.}}$$

A curve has equation $y = x^4 + 108x$

Find the coordinates of the stationary point and determine its nature.

$$\frac{dy}{dx} = 4x^3 + 108$$

$$\text{At SP } 4x^3 + 108 = 0$$

$$x^3 = -27$$

$$x = -3$$

$$\underline{\text{SP } (-3, -243)}$$

$$\frac{d^2y}{dx^2} = 12x^2 = 108 > 0$$

$$\Rightarrow \underline{\text{MIN}}$$