14th May

Corbettmaths

The longest side of a right angle triangle is $\sqrt{46}$cm

One of the shorter sides has a length of $\sqrt{7}$cm

What is the perimeter of the triangle?

$a^2 + b^2 = c^2$

$7 + b^2 = 46$

$b = \sqrt{39}$

$P = \sqrt{7} + \sqrt{39} + \sqrt{46}$

$= 15.67$cm

Solve the simultaneous equations

$x + 2y - 3z = -11$ (1)

$2x - y + 3z = 18$ (2)

$3x + y + z = 10$ (3)

(1) + (2) $3x + y = 7$

(1) + 3 × (3) $10x + 5y = 19$

$\Rightarrow 2x + y = 3.8$

$x = 3.2$

$y = -2.6$

$9.6 - 2.6 + z = 10$

$\Rightarrow z = 3$

Work out the equation of the normal to the curve $y = x^2 - 12$ at the point A(4, 4)

$y = x^2 - 12$

$\frac{dy}{dx} = 2x$

$x = 4 \Rightarrow \frac{dy}{dx} = 8$

Normal is $y - 4 = -\frac{1}{8}(x - 4)$

$\Rightarrow y = -\frac{1}{8}x + \frac{9}{2}$

The normal also intersects the curve at the point B.

Work out the coordinates of B.

At B $x^2 - 12 = -\frac{1}{8}x + \frac{9}{2}$

$8x^2 - 96 = -x + 36$

$8x^2 + x - 132 = 0$

$(x - 4)(8x + 33) = 0$

$\downarrow$

B $\left(-\frac{33}{8}, \frac{321}{64}\right)$