



Solve the simultaneous equations

$$\begin{aligned} x^2 + y^2 &= 10 \\ x - y - 2 &= 0 \end{aligned}$$

$$x = y + 2$$

$$(y + 2)^2 + y^2 = 10$$

$$y^2 + 4y + 4 + y^2 = 10$$

$$2y^2 + 4y - 6 = 0$$

$$y^2 + 2y - 3 = 0$$

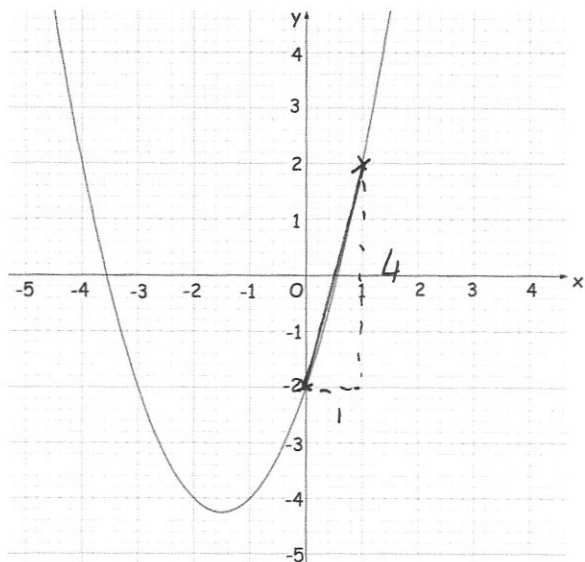
$$(y - 1)(y + 3) = 0$$

$$y = 1 \quad \text{or} \quad y = -3$$

$$x = 3 \quad \text{or} \quad x = -1$$

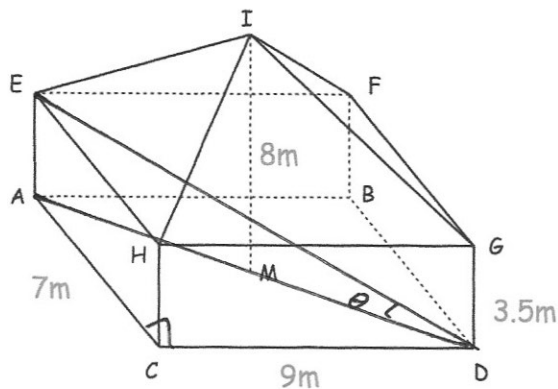
The graph of  $y = f(x)$  is shownWrite down the value of  $f(-3)$ 

$$-2$$

Find the average rate of change of  $y$  with respect to  $x$  between  $x = 0$  and  $x = 1$ 

$$\frac{4}{1} = 4$$

The diagram below shows a tent, made from a cuboid and a pyramid. The apex of the pyramid, I, is directly above the base, M, of ABDC.



$$AD^2 = 7^2 + 9^2$$

$$AD = \sqrt{130}$$

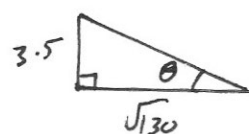
Work out the volume of the tent.

$$\text{Cuboid: } 7 \times 9 \times 3.5 = 220.5 \text{ m}^3$$

$$\text{Pyramid: } \frac{1}{3} \times (7 \times 9) \times 4.5 = 94.5 \text{ m}^3$$

$$315 \text{ m}^3$$

Find the size of angle ADE



$$\tan \theta = \frac{3.5}{\sqrt{130}}$$

$$\theta = 17.065^\circ$$