

10th March

Corbettmaths

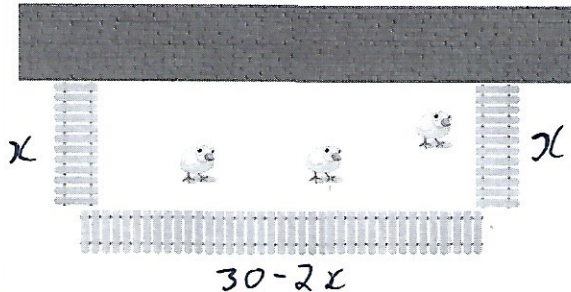
 $f(x) = 12 - 3x$ has domain $-3 \leq x \leq 10$
Work out the range of $f(x)$

$$f(-3) = 12 - 3(-3)$$

$$= 12 + 9 = 21$$

$$f(10) = 12 - 3(10) = -18$$

$$-18 < f(x) < 21$$



Rachel makes a rectangular pen for her chickens.

One side of the pen is a brick wall and the other three sides are made using 30 metres of wooden fencing.

The width of the pen is x metres.

Show the area is given by

$$A = 30x - 2x^2$$

$$A = x(30 - 2x)$$

$$A = 30x - 2x^2$$

Using differentiation, find the maximum value of A .

$$\frac{dA}{dx} = 30 - 4x$$

$$\text{Max} \quad 30 - 4x = 0$$

$$4x = 30$$

$$x = 7.5 \text{ m}$$

$$A = 30(7.5) - 2(7.5)^2$$

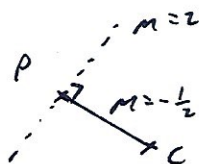
$$= 112.5 \text{ m}^2$$

The line l is a tangent to the circle $(x + 2)^2 + (y + 1)^2 = 20$ at the point

P. $C(-2, -1)$

P is the point $(-6, 1)$

Work out the equation of the line l



$$y = 2x + c$$

$$1 = -12 + c$$

$$c = 13$$

$$y = 2x + 13$$