

TG 7 Find the area bounded by the line $y = 5$ and the curve $y = x^2 - 4$.
ADI

First, find points of intersection:

$$x^2 - 4 = 5$$

$$x^2 = 9$$

$$x = \pm 3$$

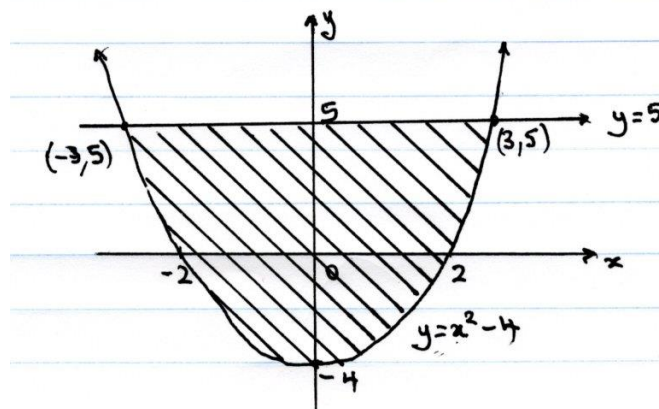
$$\text{Area} = \int_{-3}^3 (5 - (x^2 - 4)) dx$$

$$= 2 \int_0^3 (9 - x^2) dx$$

$$= 2 \left[9x - \frac{x^3}{3} \right]_0^3$$

$$= 2 \left[9(3) - \frac{3^3}{3} - 0 \right]$$

$$= 36 \quad \therefore \text{the area is } 36 \text{ units}^2.$$



* These solutions have been provided by [projectmaths](http://projectmaths.com.au) and are not supplied or endorsed by NESA.

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