

**TG** 5 Find the area bounded by the graph of  $y = 3x^2 + 6$ , the x-axis, and the lines  
**ADI**  $x = -2$  and  $x = 2$ .

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$$\begin{aligned}\text{Area} &= \int_{-2}^2 (3x^2 + 6) dx \\ &= 2 \int_0^2 (3x^2 + 6) dx \quad (\text{as function is even}) \\ &= 2 \left[ x^3 + 6x \right]_0^2 \\ &= 2 \left[ 2^3 + 6(2) - 0 \right] \\ &= 40 \quad \therefore \text{the area is } 40 \text{ units}^2.\end{aligned}$$

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

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