

10th August



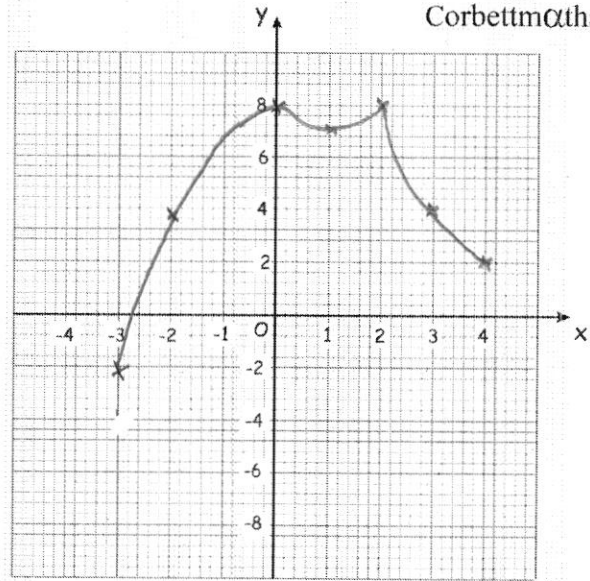
Corbettmaths

A function $f(x)$ is defined as

$$f(x) = 10 + x - x^2 \quad -3 \leq x < -1$$

$$= x^2 + 7 \quad -1 \leq x < 1$$

$$= \frac{8}{x} \quad 1 \leq x \leq 4$$



Draw the graph of $y = f(x)$

$$y = \frac{8}{x^4}$$

Find $\frac{dy}{dx}$

$$y = 8x^{-4}$$

$$\frac{dy}{dx} = -32x^{-5} = -\frac{32}{x^5}$$

Rationalise and simplify $\frac{17\sqrt{3} + 5\sqrt{5}}{2\sqrt{3} - \sqrt{5}}$

$$\times \frac{2\sqrt{3} + \sqrt{5}}{2\sqrt{3} + \sqrt{5}}$$

$$= \frac{102 + 25 + 27\sqrt{15}}{12 - 5}$$

$$= \frac{127 + 27\sqrt{15}}{7}$$

Prove $\tan\theta \cos\theta \equiv \sin\theta$

$$\text{LHS} = \frac{\sin\theta}{\cos\theta} \times \cos\theta$$

$$= \sin\theta$$