

$$\boxed{13} \quad y = \frac{1 - 2x^2}{x^4 - 2x^2 + 5}$$

$$\rightarrow \frac{dy}{dx} = \frac{(x^4 - 2x^2 + 5)(-2(2)x) - (1 - 2x^2)(4x^3 - 2(2)x)}{(x^4 - 2x^2 + 5)^2}$$

$$= \frac{-4x(x^4 - 2x^2 + 5) - (1 - 2x^2)(4x^3 - 4x)}{(x^4 - 2x^2 + 5)^2}$$

$$= \frac{(-4x^5 + 8x^3 - 20x) - (4x^3 - 4x - 8x^5 + 8x^3)}{(x^4 - 2x^2 + 5)^2}$$

$$= \frac{4x^5 - 4x^3 - 16x}{(x^4 - 2x^2 + 5)^2}$$

$\boxed{216}$ The number of action potentials produced by a nerve, t seconds after a stimulus, is given by:-

$$N(t) = 25t + \frac{4}{t^2 + 2} - 2$$

Find the rate at which the action potentials are produced by the ~~nerve~~ nerve.

$$\text{the rate of change} = N'(t) = 25 + \frac{(t^2 + 2)(0) - 4(2t)}{(t^2 + 2)^2}$$

$$= 25 + \frac{-8t}{(t^2 + 2)^2}$$