$$y = \left(\frac{t^3 - 2t + 1}{t^4 + 3} \right)^{13}$$

$$u = \frac{t^3 - 2t + 1}{t^4 + 3} \longrightarrow \frac{du}{dt} = \frac{(3t^2 - 2)(t^4 + 3) - (4t^3)(t^3 - 2t + 1)}{(t^4 + 3)^2}$$

$$y = u^{13} \longrightarrow \frac{dy}{du} = 13u^{12}$$

$$\frac{dy}{dt} = \frac{dy}{du} \cdot \frac{du}{dt} = 13u^{12} \left(\frac{(3t^2 - 2)(t^4 + 3) - (4t^3)(t^3 - 2t + 1)}{(t^4 + 3)^2} \right)$$

$$= 13 \left(\frac{t^3 - 2t + 1}{t^4 + 3} \right)^{12} \left(\frac{(3t^2 - 2)(t^4 + 3) - (4t^3)(t^3 - 2t + 1)}{(t^4 + 3)^2} \right)$$