1. Find the derivative of $y = \log_3(x^5 + 1)$..

$$y' = \frac{5x^4}{(x^5 + 1)\ln(3)}$$

2. The price demand function for a product is given by $x = 1000 - p^3$. Find the elasticity when the price is $5.

$$E(p) = -p * \frac{-3p^2}{1000 - p^3} = \frac{3p^3}{1000 - p^3}$$

$$E(5) = \frac{3(5)^3}{1000 - (5)^3} = 0.42857$$

3. An item is priced at $8 and at this price $E(8) = 0.75$. If the price is changed by 7%, what is the approximate percent change in demand.

$$7\% * 0.75 = 5.25\%$$

Demand will have a percent change of approximately 5.25%