

Quotient Rule and Applications

1. Find $f'(x)$ for

$$f(x) = \frac{2x}{x+1}$$

2. Find $f'(x)$ for

$$f(x) = \frac{x^3 + 1}{x^2 + e^x}$$

3. If a stone is thrown upwards with height at time t given by $h(t) = 10t - t^2$, what is the velocity after the stone has risen 24m?
4. Find the equation of the normal line to $f(x) = (\sqrt{x})(e^x + 1)$ at $x = 1$.