

Name: _____

Quiz 5, sections 2.7, 2.8

1. (6 pts) Use the definition of the derivative to find $f'(x)$ for $f(x) = \frac{2}{x}$.

$$\bullet \quad f(x+h) - f(x) = \frac{2}{x+h} - \frac{2}{x} = \frac{2x - 2(x+h)}{x(x+h)}$$

$$= \frac{-2h}{x(x+h)}$$

$$\bullet \quad \frac{f(x+h) - f(x)}{h} = \frac{-2}{x(x+h)}$$

$$\bullet \quad f'(x) = \lim_{h \rightarrow 0} \frac{-2}{x(x+h)} = -\frac{2}{x^2}$$

2. (4 pts) Given the graph of $f(x)$ below, sketch the graph of $f'(x)$.