

Definition of the Derivative

1. Given a function, $f(x)$, the definition of the derivative says that

$$f'(x) =$$

2. Use the definition of derivative to find $f'(x)$ given that $f(x) = 3x + 2$.

3. Let $y = 2x^2$. Use the definition of the derivative to calculate $\left. \frac{dy}{dx} \right|_{x=3}$.

4. Give that $f(x) = \frac{1}{2x-1}$, find $f'(-1)$.