

Finding the Slope at a Point II

Introduction to Calculus

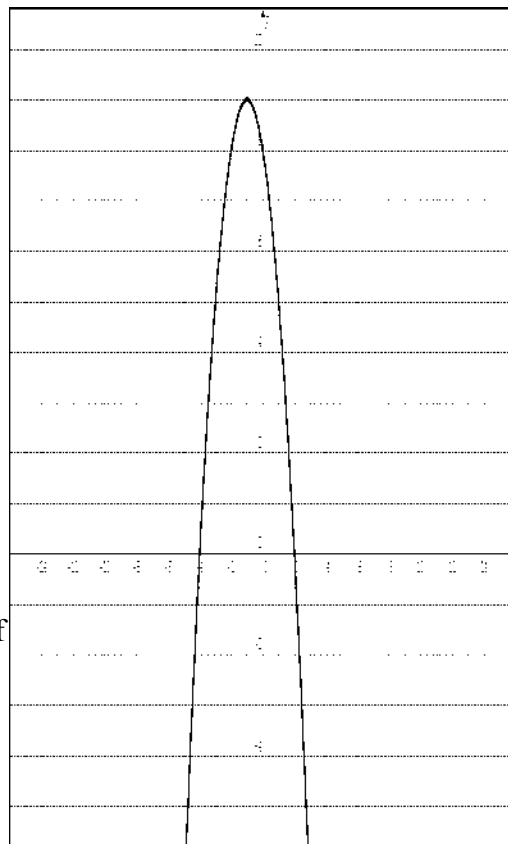
Name: _____

Given: $f(x) = -x^2 - 2x + 8$

1. Approximate the slope at $x = -4$, by using a small value for h .
(Remember: You're finding the slope of the **secant** line that joins two points.)

2. Find the derivative **using calculus** at $x = -4$ by using the limit definition of the derivative. (Remember: You're finding the slope of the line that is **tangent** to $f(x)$ at $x = -4$.)

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



Given: $f(x) = 2x^2 + 8x$

1. Approximate the slope at $x=0$, by using a small value for h .
 (Remember: You're finding the slope of the *secant* line that joins two points.)

2. Find the derivative **using calculus** at $x=0$ by using the limit definition of the derivative. (Remember: You're finding the slope of the line that is *tangent* to $f(x)$ at $x = 0$.)

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

