

Warm-up: 1.28.20

- 1) Pick up handouts and glue pgs into INB.
- 2) Get calculator and get out HW/ck sheet.
- 3) Copy the following problem on pg. 29 in INB and complete. "Write the equation of

the tangent line to $f(x) = -2x^2$ at $x = 2$."

1. Slope \Rightarrow derivative 2. point $(2, -8)$

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

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

$f'(x) = -4x$
 $f'(2) = -4(2)$
 $m = -8$

$$\lim_{h \rightarrow 0} \frac{-2x^2 - 4xh - 2h^2 + 2x^2}{h}$$

$$\frac{-4x - 2h}{1} = -4x - 2(0)$$

pt $(2, -8)$ $m = -8$ $-4x$

$$y - y_1 = m(x - x_1)$$

$$y - (-8) = -8(x - 2)$$

$$y + 8 = -8x + 16$$

$$y = -8x + 8$$