

Use algebra to find the equation  
of the line through  $(-6, 2)$  and  
 $(3, -4)$ .

$$y = mx + b$$

$$m = \frac{2 - (-4)}{-6 - 3} = \frac{6}{-9} = -\frac{2}{3}$$

$$y = -\frac{2}{3}x + b$$

$$2 = -\frac{2}{3}(-6) + b$$

$$2 = 4 + b$$

$$b = -2$$

$$y = -\frac{2}{3}x - 2$$

$$y = ax^2 + bx + c$$

$$y' = 2ax + b$$

$$2ax + b = 0$$

$$2ax = -b$$

$$x = \frac{-b}{2a}$$

Equation of the secant line from  
 $x=1$  to  $x=4$ ?

$$y = mx + b$$

$$y = 1x + b$$

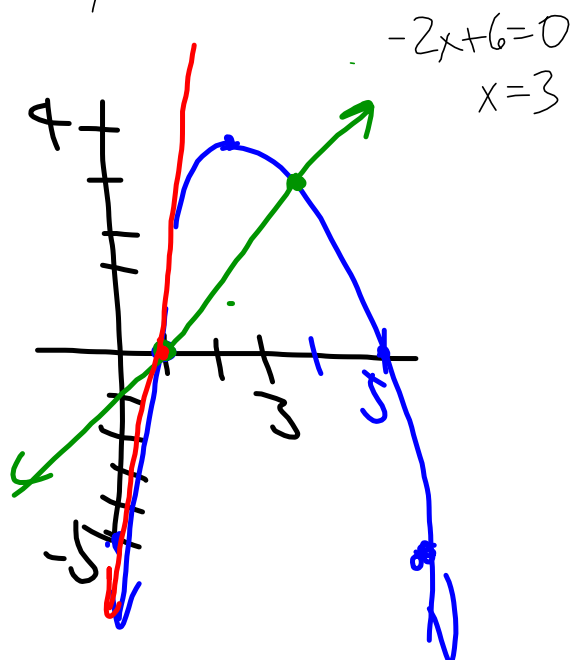
$$y = 1x - 1$$

$$m = \frac{3-0}{4-1} = \frac{3}{3} = 1$$

$$0 = 1 + b$$
$$b = -1$$

$$y = -x^2 + 6x - 5 \implies y' = -2x + 6$$

x	y
0	-5
(3)	(4) ← vertex



$$y = -x^2 + 6x - 5$$

$$y = mx + b$$

$$y = 4x + b \rightarrow 0 = 4 + b$$

$$-4 = b$$

$$y = 4x - 4$$

Tangent line at  $x=1$

How do we get the slope? Derivative!

$$y' = -2x + 6$$

$$y' = -2(1) + 6 = 4 = m$$

$$y = -x^2 + 6x - 5$$

Eq. of tangent line  
at  $x = 4$ .

$$y = -2x + b$$

$$y' = -2x + 6$$

$$3 = -2(4) + b$$

$$\text{When } x = 4, y' = -8 + 6 = \textcircled{-2}$$

$$3 = -8 + b$$

$$b = 11$$

$$y = -2x + 11$$

$$A = P \left( 1 + \frac{r}{n} \right)^{nt} \quad \text{Principal} = P$$

$$P = \$2000$$

$$r = 4\% = .04$$

$$t = 5$$

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As  $n \rightarrow \infty$   
 $A \rightarrow 2442.81?$