

Day 6 is Monday, January 28, 2013

Section 3-4 The Derivative

Rates of Change

Series of examples involving the function

$$f(x) = -x^2 + 6x - 5 = -(x-1)(x-5)$$

Standard form *factored*

(A) draw the graph

Solution: From the standard form, we know the graph

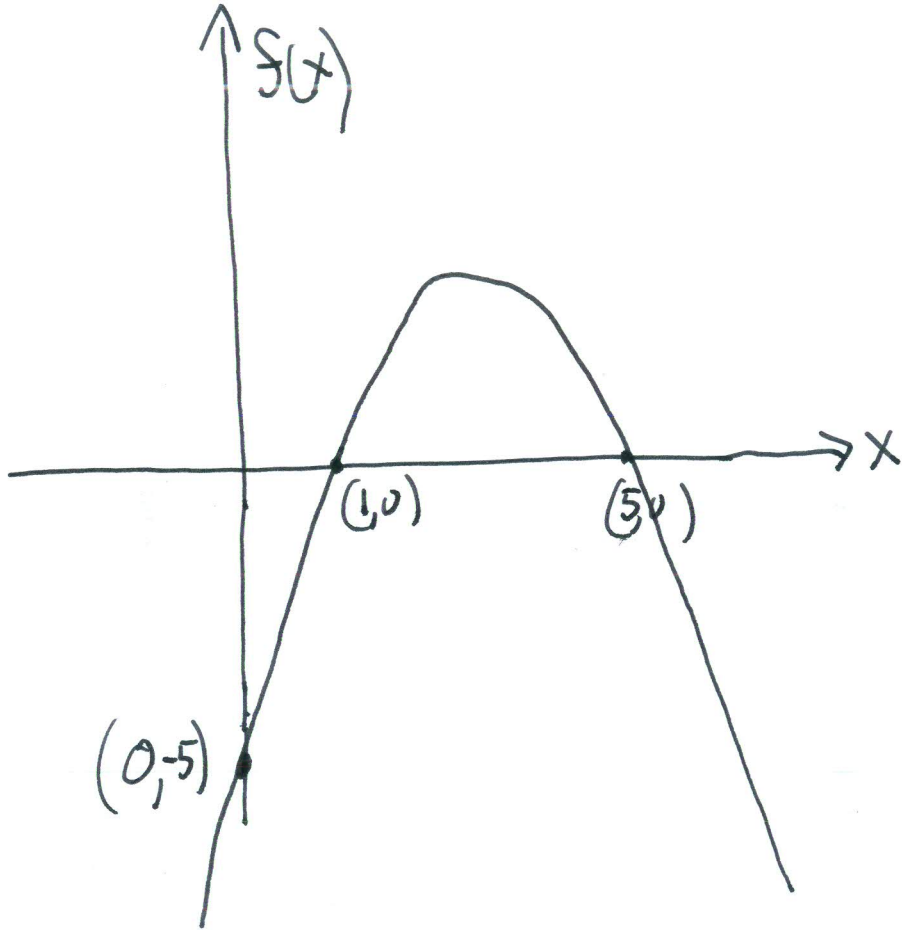
$$-x^2 + 6x - 5$$

parabola (pointing to the 2)
facing down (pointing to the -)
y-intercept at (x,y) = (0,-5) (pointing to the -5)

From the factored form $-(x-1)(x-5)$

We know that x-intercepts at $(x,y) = (1,0)$ and $(5,0)$

With just that info, we can sketch a graph



(B) draw the secant line that passes through the points $(x, y) = (4, f(4))$ and $(x, y) = (6, f(6))$

Solution: find $f(4)$ and $f(6)$

$$f(4) = -(4-1)(4-5) = -(3)(-1) = 3$$

$$f(6) = -(6-1)(6-5) = -(5)(1) = -5$$

the two points are $(x, y) = (4, 3)$ and $(x, y) = (6, -5)$

