

# Rates of Change and Increasing and Decreasing Intervals

Saturday, January 07, 2012  
10:08 PM

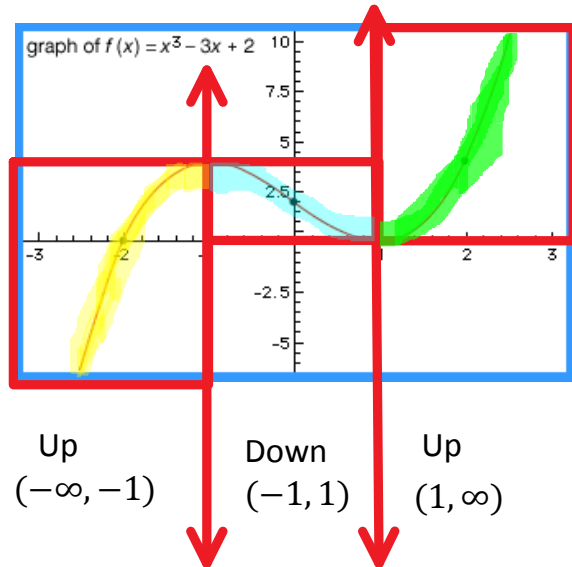
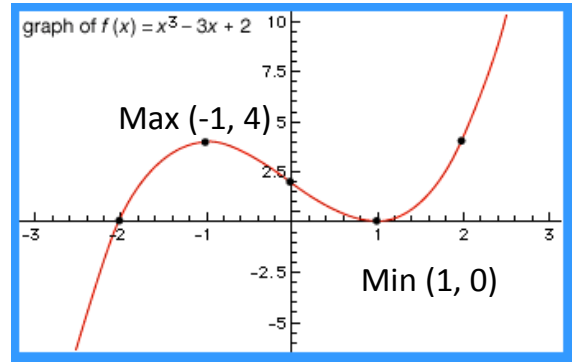
## Identifying sections of increase and decrease.

Step 1: Find the minimum and/or maximum for each section.

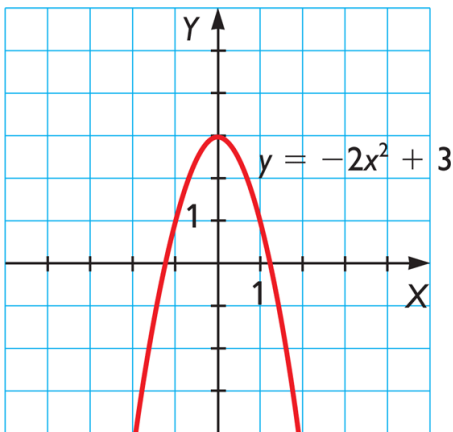
Step 2: Determine if the graph is going up or down. NOTE: Always look left to right.

Write down the x coordinates of the min and max points.

Step 3: Use the x-coordinates to write the interval that increases and the intervals that decrease.



Let's try it with a parabola.



Identify the min or max. Because this parabola opens down we will have max at the parabola's vertex.

$$x = \frac{-b}{2a} = \frac{0}{2(-2)} = 0 \quad y = -2(0)^2 + 3 = 3 \quad \text{Max at } (0, 3)$$

Increasing interval:  $(-\infty, 0)$

Decreasing interval:  $(0, \infty)$

Remember to always use the x-coordinate for increasing/decreasing intervals.

## Calculating Average Rates of Change

Find the average rate of change through the given points from the parabola

