Increasing and Decreasing Intervals

We always read graphs from _____ to _____.

If the graph is going up as we read from _____ to _____, we say the graph is _____.

If the graph is going down as we read from _____ to _____, we say the graph is _____.

When reporting intervals where the graph is increasing or decreasing, we report the **x-value** where the graph begins increasing or decreasing and the **x-value** where the graph stops increasing or decreasing. We place these values inside parentheses.

For example, if a graph started increasing at x = 5 and stopped increasing at x = 10, we would write this as (5, 10).

Sketch each graph. Use your calculator to find the relative maximum and/or minimum of each graph. Then, use these values to write the intervals on which the graph is increasing and decreasing.

$f(x) = x^3 + 5x^2 - 8$

Increasing:

Decreasing:

$f(x) = x^3 + 4x^2 + 2$

Increasing:

Decreasing:

Sketch each graph. Use your calculator to find the relative maximum and/or minimum of each graph. Then, use these values to write the intervals on which the graph is increasing and decreasing.

$f(x) = x^2 - 4x + 3$

Increasing:

Decreasing:

$f(x) = -2x^2 - 4x - 6$

Increasing:

Decreasing: