

Name _____

2-3 Mathematical Literacy and Vocabulary

Factored Form of a Quadratic Function

Example

Identify the interval(s) on which the function $y = 4x^2 - 15x - 4$ is positive. Fill in the blanks. Some of the steps have been done for you.

The graph of a quadratic function can only turn from positive to negative or negative to positive when it crosses the x -axis. Find the zeros of the function to identify these points.

$$4x^2 - 15x - 4 = 0$$

Set equation equal to 0.

Factor.

$$4x + 1 = 0 \text{ or } x - 4 = 0$$

_____ or _____

Solve.

Two zeros create three intervals. Choose an x -value to test in each interval. Plug the x -value in to the original expression to determine if its value is positive or negative.

$x < -\frac{1}{4}$	$-\frac{1}{4} < x < 4$	$x > 4$
Choose $x = -1$. $4(-1)^2 - 15(-1) - 4$ =	Choose $x = 0$. $4(0)^2 - 15(0) - 4$ =	Choose $x = 5$. $4(5)^2 - 15(5) - 4$ =
Positive / Negative	Positive / Negative	Positive / Negative

Graph the function to verify where it is positive. The function is positive when the graph is above the x -axis. It appears that the function is above the x -axis on the intervals _____.

