

Activator

Simplify the following expressions. Are they equivalent? **YES**

$$x(x)$$

$$x^2$$

$$-2x^2 + 3x^2$$

$$1x^2$$

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Does the exponent change?

Yes. Why?

Multiplying variables

Does the exponent change?

No Why?

Combining variables

Today's Objective

Unit 7

Lesson 3

Students will be able to multiply and graph a quadratic.





Today's New Vocab (1 of 4)

The parts of a Quadratic (number exponent) graph.

Here is $y = (x+1)(x-3)$

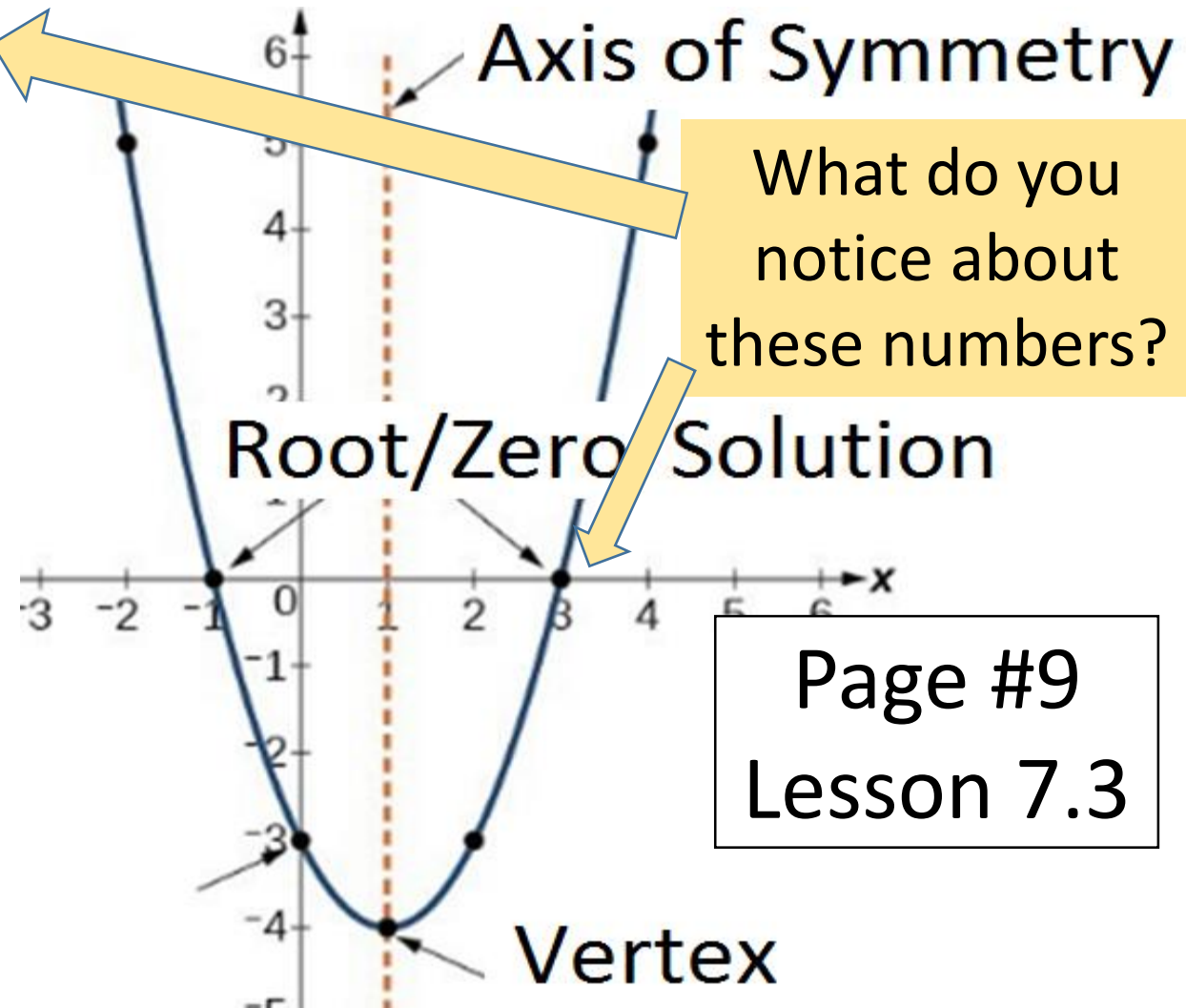
Axis of Symmetry –

A line that splits the graph in half.

Root, Zero, or Solutions –

Where the graph crosses the x-axis.

Vertex – The highest or lowest point(s) on the graph.



Today's New Vocab (2 of 4)

When $x = -1$ and $x = 3$, write the equation.

$x = -1$ Solution/Zero's $x = 3$ Solution

+1 +1

$$x + 1 = 0$$

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-3 -3

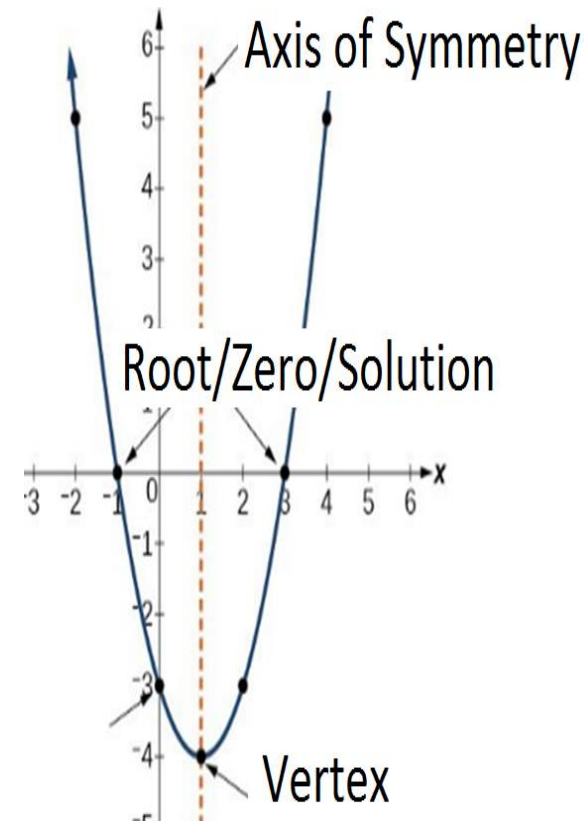
$$x - 3 = 0$$

$(x + 1) = 0$ ← Factors → $(x - 3) = 0$

$$Y = (x + 1)(x - 3)$$

To write the **factors**,

you need to **sign switch** from the graph.



Today's New Vocab (3 of 4)

Factors can be multiplied. Zero's cannot be multiplied.

Determine the product of the following factors.

$$x - 3$$

x	$+ x^2$	$- 3x$
$+ 1$	$+ 1x$	$- 3$

$$y = (x + 1)(x - 3)$$

Write all boxes down

$$x^2 + 1x - 3x - 3$$

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Like
Terms

$$x^2 - 2x - 3$$

Today's New Vocab (4 of 4)

Graph the polynomial $f(x) = (x + 1)(x - 3)$

Or, graph the function $g(x) = x^2 - 2x - 3$

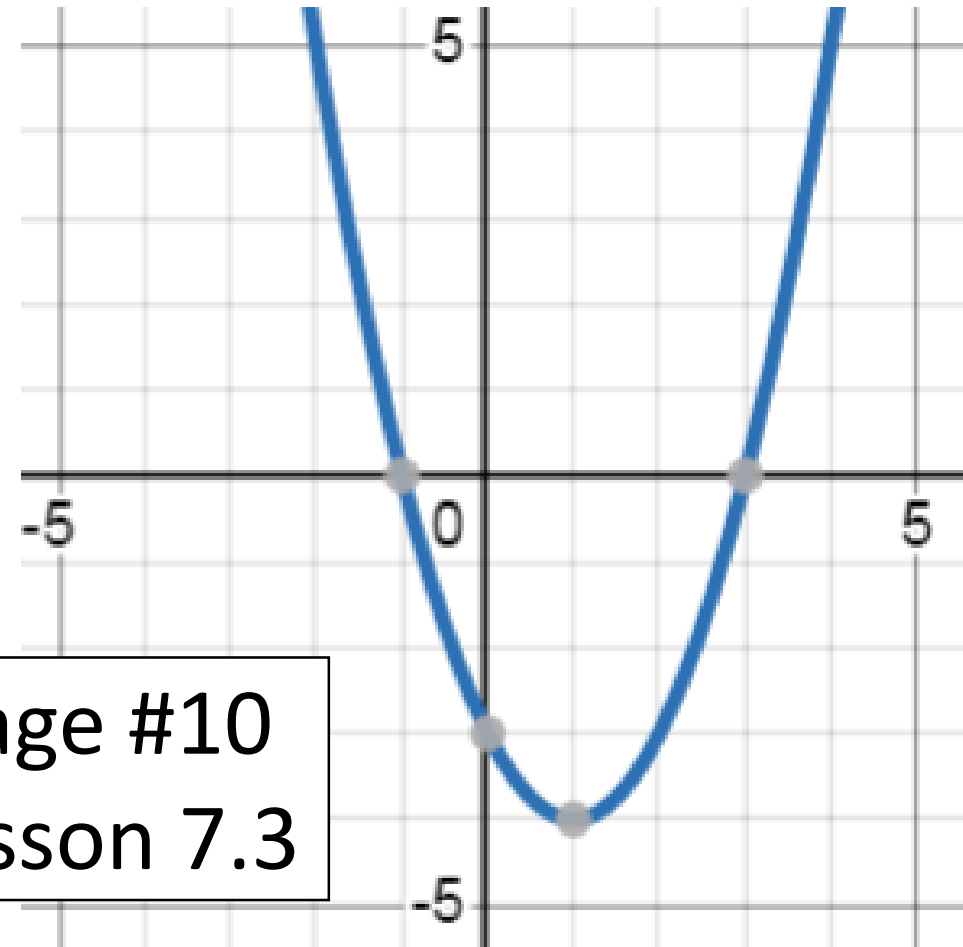
$$x = \frac{-1}{1}$$

$$x = \frac{3}{1}$$

$(-1, 0)$ $(3, 0)$

x	f(x)
-1	0
0	-3
1	-4
2	-3
3	0

BOX these zero's
on the graph.



Group Work Questions

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Directions: All groups, please do all of the questions. Use your notes from last class to help you. [Ask 2 people before you ask me.]

Last time, we did Lesson 7.3 Notes.

2nd Stop @ 9:03 3rd Stop @ 10:06 8th Stop @ 2:25

*One person from each group will present one question.

Work Period

Determine the product of the following expression.

$$(2x - 4)(x + 2)$$

x	$+ 2x^2$	$- 4x$
$+ 2$	$+ 4x$	$- 8$

Write all boxes down

$$2x^2 - 4x + 4x - 8$$

Bonus: Can you graph this? Yes
Then, graph it.

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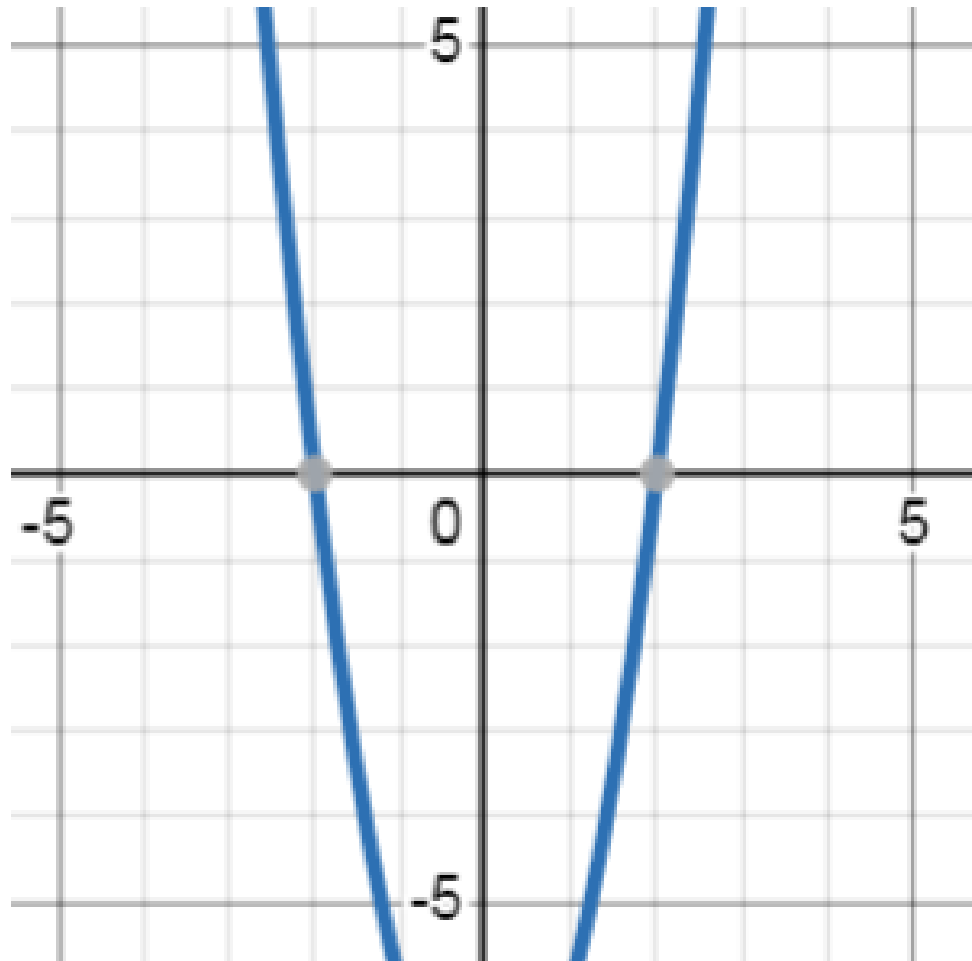
Like
Terms

$$2x^2 - 8$$

Exit Ticket

Graph $G(x) = 2x^2 - 8$ or $H(x) = (x + 2)(2x - 4)$

x	$G(x)$
-2	0
-1	-6
0	-8
1	-6
2	0



Is $(-2, 0)$ a solution to the system?

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Yes, because it is on both lines and both tables.