

Quadratics Day 1

Agenda
Warm-Up

Set up Unit 8

Notes (book)

HW - Practice #1-10

Reminders
Late notebooks!!

Test corrections
(U6) due tmr!!!

Quiz NEXT Friday

Essential Question

What are the parts
of a quadratic?

Warm-Up Thursday
Set up Unit 8!!

On page 85 & 86, Put your "8" tab on 85.

UNIT 8 TITLE: 85
Quadratics

Page #	Page Title
86	Words Worth Knowing
87-89	Quadratics Book

Right hand side

86
Unit 9 Words Worth Knowing

UNIT 9: QUADRATIC FUNCTION:

- Quadratic Parent Function
- Domain
- Range
- Vertex
- Line of Symmetry
- Concavity
- Minimum
- Maximum
- X-intercepts
- Roots
- Zeros
- Solutions
- Standard Form
- Quadratic Regression
- Evaluate
- Stretch
- Compression
- Translate
- Reflect
- Graphing
- Square Roots
- Factoring
- Quadratic Formula
- Discriminant

Left hand side

Quadratics Day 1

If you are unhappy with your notebook grade...

1. Fix the problem (missing/incomplete notes, table of contents, etc)

- You can go online to mskmath.com to get notes.

2. Write an explanation of why those pages were missing on the unit 7 table of contents page.

3. Turn in your fixed notebook to Ms. K during tutoring.
You can receive up to half points back.

This is an easy quiz grade!! Fix it!!

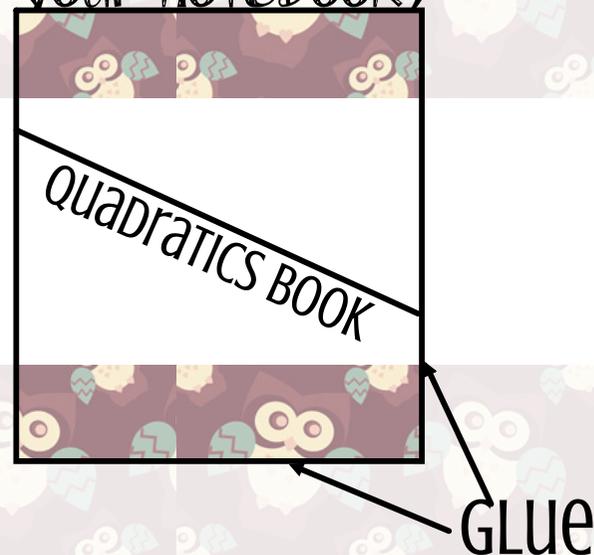
Quadratics Day 1

Quadratic Functions Book

Your notes for the next 3 days are in the pink & white book.
Arrange the pages in numerical order, then fold in half. HINT:
the pink page goes on the outside.

*Make a pocket on page 87-89
(next 2 pages in your notebook)*

Using the next 2 pages in your notebook, make a pocket. Fold one page diagonally, then glue its edges onto the other page. Your booklet will go into this pocket.



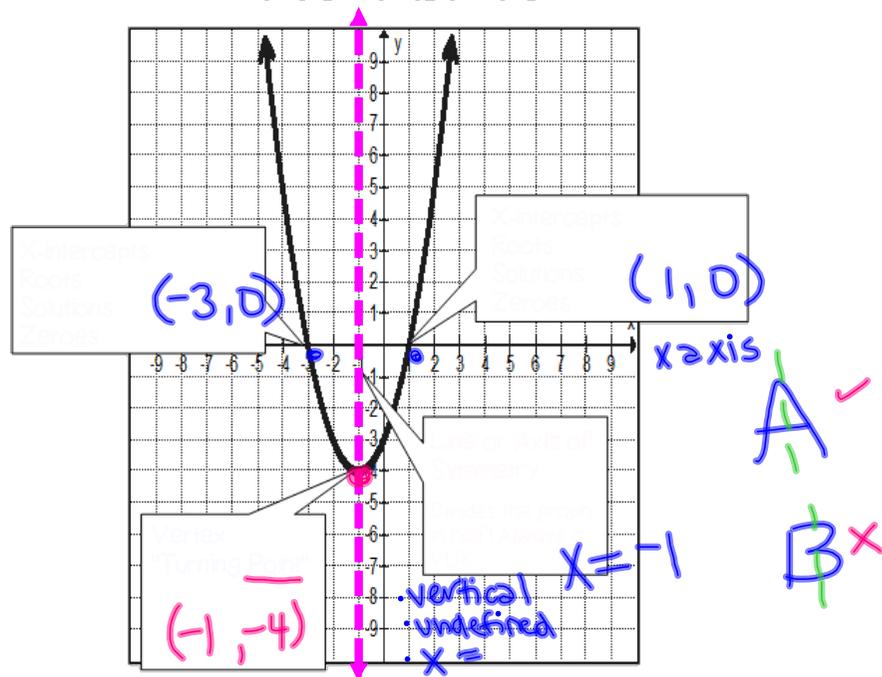
Quadratics Day 1

Algebra I Unit 9

Introduction to Quadratic FUNCTIONS

Also known as a parabola

Parts of a Quadratic



Concavity:

vertex

vertex

Domain: All the X-Values

Range: All the Y-Values

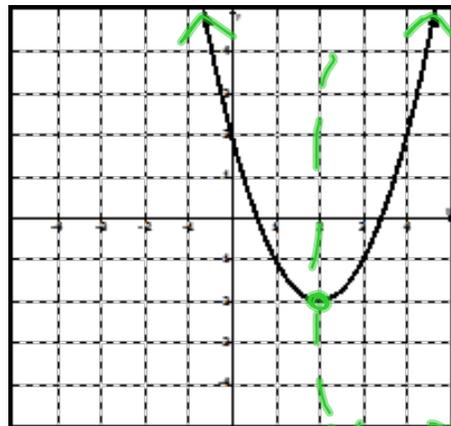
$$-\infty < x < \infty$$

$$y \geq \text{minimum}$$

$$y \leq \text{maximum}$$

Vertex of a Parabola page 2

1. $y = x^2 - 4x + 2$



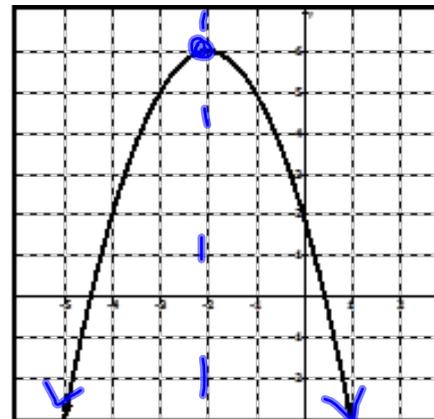
Vertex: $(2, -2)$
 turning point
 Line of Symmetry: $x = 2$
 vertical
 Minimum or Maximum

Concavity: UP

Domain: All Real #s

Range: $y \geq -2$

2. $y = -x^2 - 4x + 2$



Vertex: $(-2, 6)$
 Line of Symmetry: $x = -2$
 Minimum or Maximum

Concavity: down

Domain: \mathbb{R}

Range: $y \leq 6$

Quadratic Parent Function

Equation		Graph	
$y = x^2$			
Table			
x	y		
-3	9		
-2	4		
-1	1		
0	0		
1	1		
2	4		
3	9		
DOMAIN	All real #s	Vertex	$(0, 0)$ ORIGIN
RANGE	$y \geq 0$	LINE OF SYMMETRY	$x = 0$
	<u>Minimum</u> or Maximum		
Concavity	\vee P		

Line of Symmetry page 2

Standard Form
 $y = ax^2 + bx + c$
y is by itself
a, b, c are #s

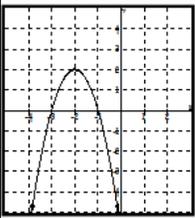
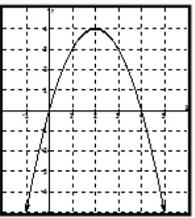
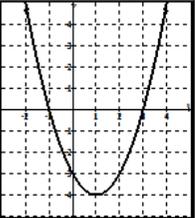
Put the following equations in Standard Form.

1. $3x^2 + y = -5x + 4$ 2. $-x^2 + 3 = 7x - y$

-3x^2 *-3x^2*

$y = -5x + 4 - 3x^2$
rearrange
 $y = -3x^2 - 5x + 4$

Line of Symmetry Exploration

Graph			
Vertex			
Line of Symmetry	$x =$		
Function	$y = -2x^2 - 8x - 6$	$y = -1x^2 + 4x$	$y = x^2 - 2x - 3$
a	-2		
b	-8		
$-\frac{b}{2a}$			

Equation of the Line of Symmetry: $x = \frac{-b}{2a}$

Find the Axis of Symmetry of each of the following parabolas.

1. $y = 2x^2 + 12x - 7$ 2. $y = 4x + x^2 - 8$

a: 2 b: 12 c: -7 *y = x^2 + 4x - 8*

$x = \frac{-b}{2a} = \frac{-(12)}{2(2)} = \frac{-12}{4}$
 $x = -3$

HW #1-10

You must bring your graphing calculator tomorrow!!!

Algebra I Unit 9: Topic 1 – Introduction to Quadratic Functions

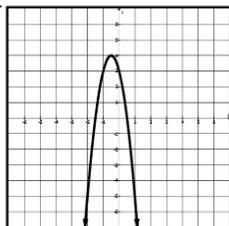
Practice – Introduction to Quadratic Functions

pp 590-605

Name _____ Date _____ Period _____

State the domain and range of each quadratic function graphed below.

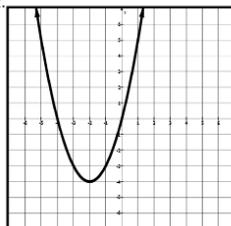
1.



Domain: _____

Range: _____

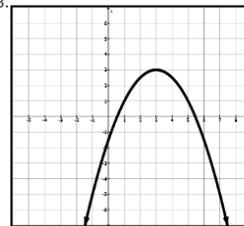
2.



Domain: _____

Range: _____

3.

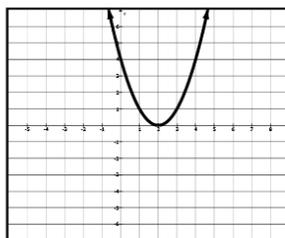


Domain: _____

Range: _____

Find the information using the graphs below.

4. $y = x^2 - 4x + 4$



$a =$ _____, $b =$ _____, $c =$ _____

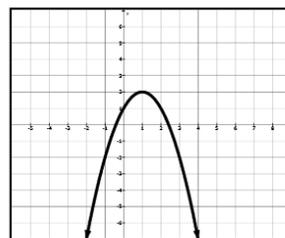
Vertex: _____

Line of Symmetry: _____

Minimum or Maximum _____

Concavity: _____

5. $y = -x^2 + 2x + 1$



$a =$ _____, $b =$ _____

Vertex: _____

Axes of Symmetry: _____

Minimum or Maximum _____

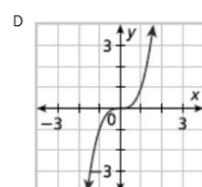
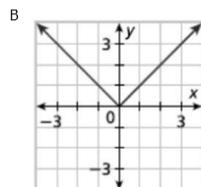
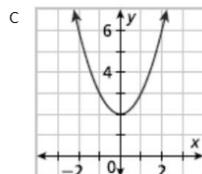
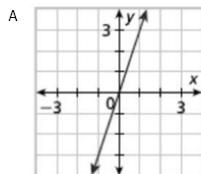
Concavity: _____

Algebra I - Unit 9: Topic 1 – Introduction to Quadratic Functions
 Find the line of symmetry of each of the following parabolas, show work.

6. $y = x^2 + 3x + 4$

7. $2x^2 - 8x = -3 + y$

8. Which of the following has a parent function of $y = x^2$.



9. Which of the following functions has a graph with an axis of symmetry of $x = -\frac{1}{2}$?

A $y = 2x^2 - 2x + 5$

B $2x + 5 = 2x^2 - y$

C $2x^2 + y = 2x + 5$

D $2x - y = 5 - 2x^2$

10. Which of the following represents the parent function of $y = -3x + 5 + 5x^2$?

A $y = x$

B $y = -2x$

C $y = |x|$

D $y = x^2$

HW Help: Quadratics Day 1

No work = no credit = no kidding!! (Especially on the back page!)

#1-3. The domain of a quadratic (with arrows) is always all real numbers!

The range depends on the concavity and the y-coordinate of the vertex. Concave up (minimum) will be \geq and concave down (maximum) will be \leq

#4-5. Once you find the vertex, the line/axis of symmetry is just $x =$ the x-coordinate!

#6-7. Find your a, b, and c values. Make sure your equation says $y =$! Then plug a & b into $x = -b/2a$. Simplify if you can.

#8. $y = x^2$ is the quadratic parent function...which graph makes a "u"?

#9 is not easy! Solve each equation for $y =$. Then name the a, b, and c values of each. Plug into the axis of symmetry equation to find which has $x = -1/2$. HINT: start from the bottom!

#10. Don't pick any equation we haven't learned yet!!

Need more help? Drop by tutorials!

