

10.1 Intro to Quadratics

ALGEBRA

Write your questions here!



Quadratics:

Standard Form:

Factored Form:

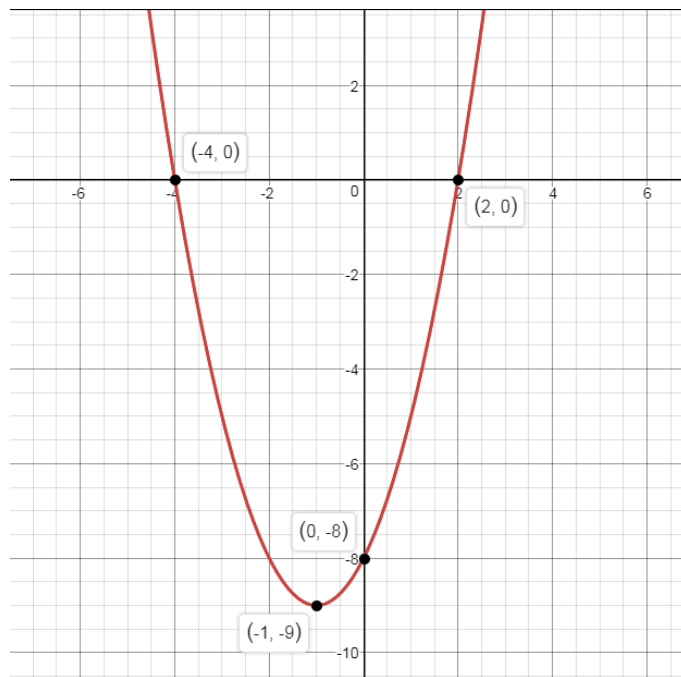
Characteristics of Quadratics:

x-intercepts:

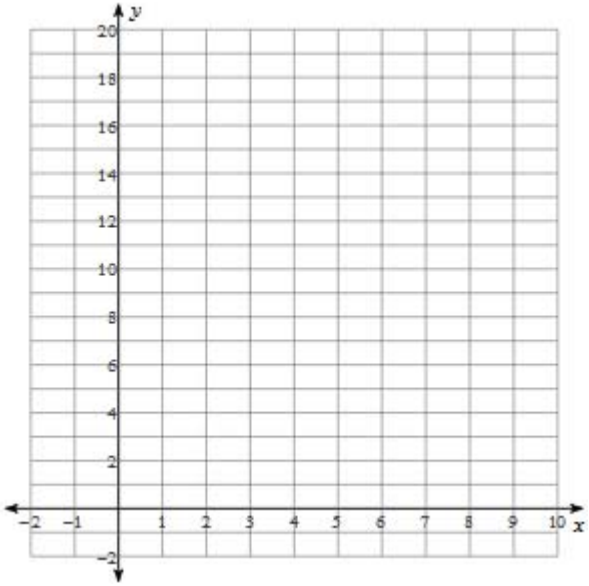
y-intercept:

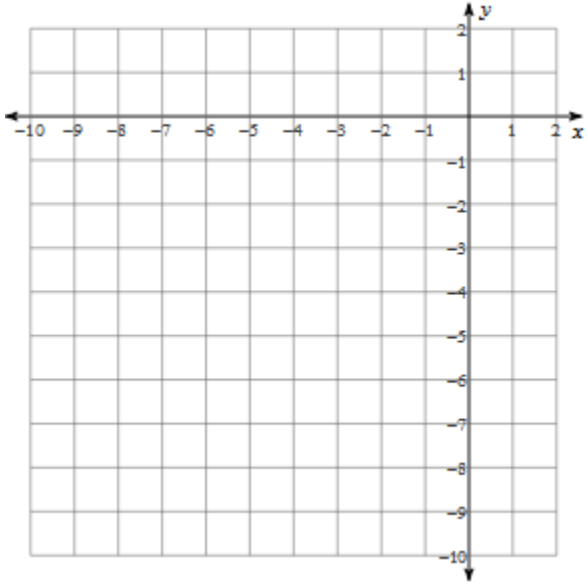
Axis of Symmetry:

Vertex:



Equation in Standard Form:	$F(x)=x^2 + 2x - 8$	Equation in Factored Form:	
x-intercepts:		y-intercept:	
Leading Coefficient:		Axis of Symmetry:	
Parabola opens which way:		Point symmetric to y-intercept:	
Vertex:		Vertex represents a Minimum or Maximum:	
Increasing and Decreasing Intervals:		Average Rate of Change on an interval:	$[-1, 0] =$ $[0, 1] =$ $[1, 2] =$

Equation in Standard Form:			
Equation in Factored Form:			
x-intercepts:			
y-intercept:			
Point symmetric to y-intercept:			
Leading Coefficient:			
Axis of Symmetry:		Vertex represents a Minimum or Maximum:	
Parabola opens which way:		Vertex:	
Increasing and Decreasing Intervals:		Average Rate of Change on an interval:	[4,5]= [5,6]= [6,7]=

Equation in Standard Form:	$F(x) = -x^2 - 4x - 4$		
Equation in Factored Form:			
x-intercepts:			
y-intercept:			
Point symmetric to y-intercept:			
Leading Coefficient:			
Axis of Symmetry:		Vertex represents a Minimum or Maximum:	
Parabola opens which way:		Vertex:	
Increasing and Decreasing Intervals:		Average Rate of Change on an interval:	[-2,-1]= [-1,0]= [0,1]=

SUMMARY:

Now, summarize your notes here!

10.1 Intro to Quadratics

PRACTICE

Directions: Fill in the empty boxes. Place info on graph and sketch graph.			
1) Equation in Standard Form:	$F(x) = x^2 + 2x - 3$		
Equation in Factored Form:			
x-intercepts:			
y-intercept:			
Point symmetric to y-intercept:			
Leading Coefficient:			
Axis of Symmetry:		Vertex represents a Minimum or Maximum:	
Parabola opens which way:		Vertex:	

2) Equation in Standard Form:			
Equation in Factored Form:	$F(x) = (2x - 1)(2x + 1)$		
x-intercepts:			
y-intercept:			
Point symmetric to y-intercept:			
Leading Coefficient:			
Axis of Symmetry:		Vertex represents a Minimum or Maximum:	
Parabola opens which way:		Vertex:	

3) Equation in Standard Form:	$F(x) = -x^2 + 4x + 12$		
Equation in Factored Form:			
x-intercepts:			
y-intercept:			
Point symmetric to y-intercept:			
Leading Coefficient:			
Axis of Symmetry:		Vertex represents a Minimum or Maximum:	
Parabola opens which way:		Vertex:	

4) Equation in Standard Form:			
Equation in Factored Form:	$F(x) = (x + 3)(x + 5)$		
x-intercepts:			
y-intercept:			
Point symmetric to y-intercept:			
Leading Coefficient:			
Axis of Symmetry:		Vertex represents a Minimum or Maximum:	
Parabola opens which way:		Vertex:	

Directions: For each equation, identify the initial value (I.V.) and the percent increase or decrease.

5) $f(x) = 100(1.75)^x$	6) $f(x) = 0.7(3.106)^x$	7) $f(x) = 8(0.75)^x$
I.V. _____	I.V. _____	I.V. _____
% Inc/Dec: _____	% Inc/Dec: _____	% Inc/Dec: _____

8) Equation in Standard Form:			
Equation in Factored Form:	$F(x) = -2(x + 4)(x + 2)$		
x-intercepts:			
y-intercept:			
Point symmetric to y-intercept:			
Leading Coefficient:			
Axis of Symmetry:			
Parabola opens which way:		Vertex:	
9) Equation in Standard Form:	$F(x) = x^2 + 7x + 12$		
Equation in Factored Form:			
x-intercepts:			
y-intercept:			
Point symmetric to y-intercept:			
Leading Coefficient:			
Axis of Symmetry:			
Parabola opens which way:		Vertex:	
Directions: Solve.	Directions: Solve the system.	Directions: Find x, when $f(x) = 5$.	
10) $\frac{w-6}{4} + 2 = 10$	11) $3x + y = -2$ $9x + 3y = 3$	12) $f(x) = 2x - 15$	

1) The following tables represent a quadratic function. The vertex is highlighted. Use the table to answer the questions.

a)

X	F(x)
-3	12
-2	7
-1	4
0	3
1	4
2	7
3	12

b)

X	F(x)
-6	-5
-5	0
-4	3
-3	4
-2	3
-1	0
0	-5

c)

X	F(x)
-1	22
0	12
1	6
2	4
3	6
4	12
5	22

b) Find the average rate of change on each interval.

$[-1, 0] =$ $[0, 1] =$

$[-4, -3] =$ $[-3, -2] =$

$[1, 2] =$ $[2, 3] =$

$[-2, -1] =$ $[1, 2] =$

$[-5, -4] =$ $[-2, -1] =$

$[0, 1] =$ $[3, 4] =$

$[-3, -2] =$ $[2, 3] =$

$[-6, -5] =$ $[-1, 0] =$

$[1, 0] =$ $[4, 5] =$

c) What are similarities of the average rates of change for each quadratic?

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d) What are differences between the average rates of change for each quadratic?

e) Which graphs open up? How do you know? Which graphs will open down? How will you know?

EXIT TICKET –

Complete the graph by plotting three additional points.
Mark the points clearly on the graph.

Explain in complete sentences how you found those points.

