

12.1 Graphing Quadratics in Standard Form

ALGEBRA

Write your questions here!



Quadratic =

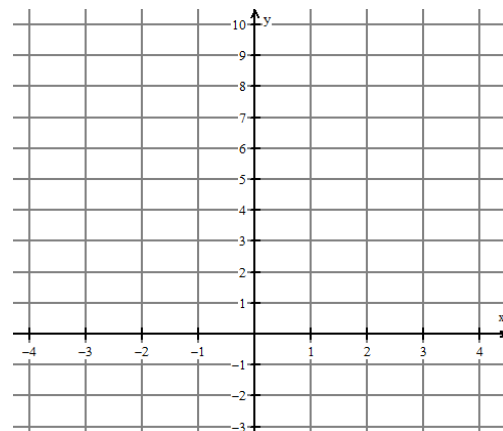
$y =$

$a =$

$b =$

$c =$

x	y
-2	
-1	
0	
1	
2	
3	



Vertex =

Axis of Symmetry =

$f(x) =$

$a =$

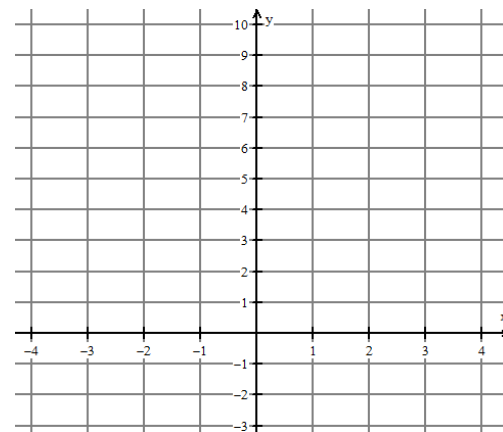
$b =$

$c =$

Axis of Symmetry

Vertex

x	$f(x)$
-2	
-1	
0	
1	
2	



$$f(x) =$$

$a =$

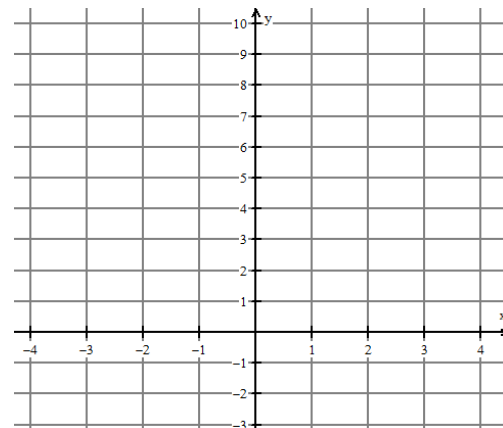
$b =$

$c =$

Axis of Symmetry

Vertex

x	$f(x)$
-2	
-1	
0	
1	
2	



SUMMARY:

Now,
summarize
your notes
here!



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PRACTICE

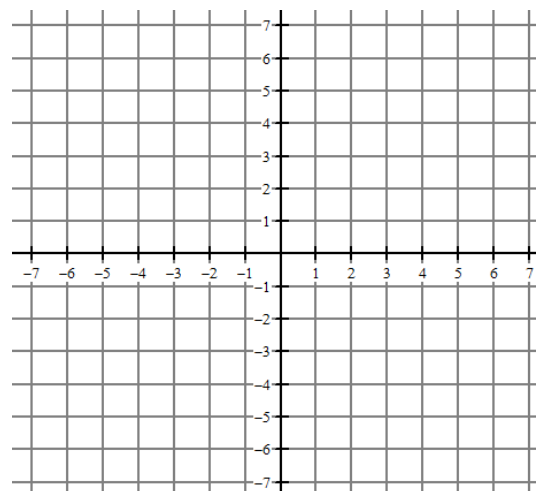
1.

$$y = x^2 + 6x + 2$$

Axis of symmetry

Vertex

x	y
-6	
-5	
-4	
-3	
-2	
-1	
0	



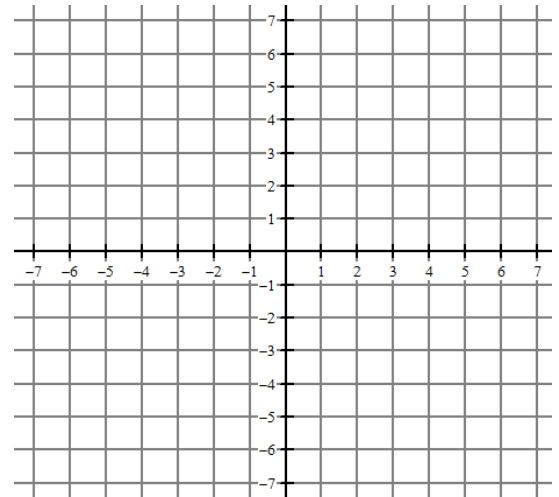
2.

$$f(x) = -2x^2 + 7x + 1$$

Axis of symmetry

Vertex

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



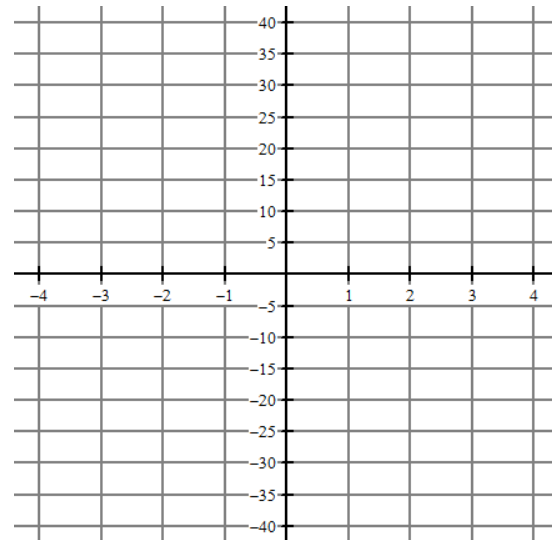
3.

$$y = 4x^2 + 8x - 30$$

Axis of symmetry

Vertex

x	y
-3	
-2	
-1	
0	
1	
2	
3	



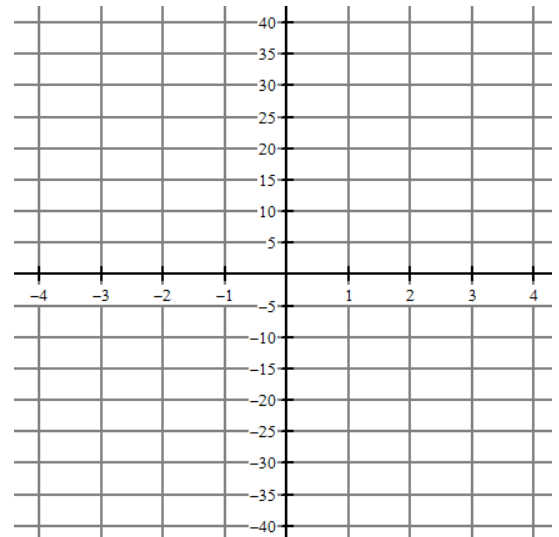
4.

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

Axis of symmetry

Vertex

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



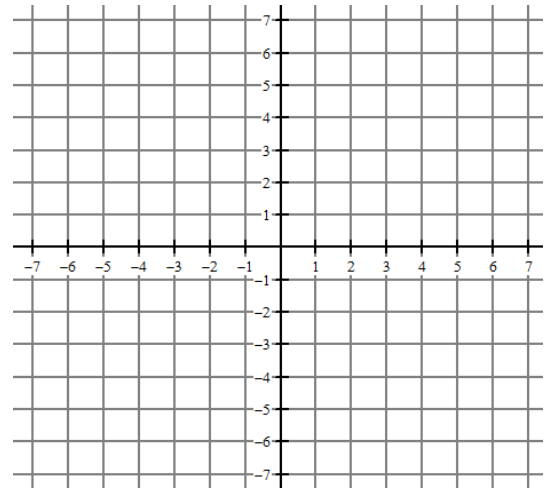
5.

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

Axis of symmetry

Vertex

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



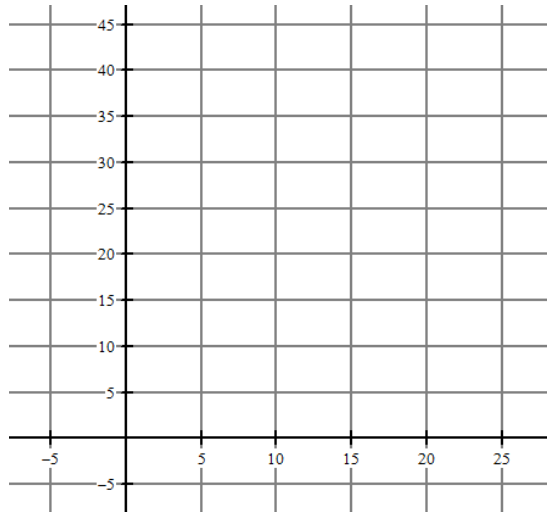
6.

$$y = -\frac{1}{2}x^2 + 9x + 4$$

Axis of symmetry

Vertex

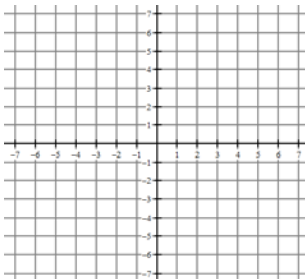
x	y
0	
5	
7	
15	
18	
25	



SKILLZ REVIEW

GRAPH

1. $2x - 3y = -12$



FACTOR

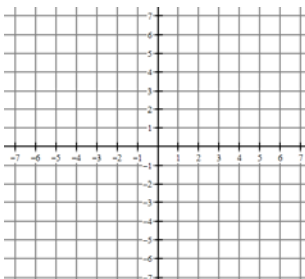
2. $4x^2 + 2x$

RADICALS

3. Simplify

$$\sqrt{40}$$

4. $x + 5y = -10$



5. $x^2 - 5x - 24$

6. Simplify

$$\frac{3}{\sqrt{5}}$$

12.1 Graphing Quadratics in Standard Form

APPLICATION

1. What is the axis of symmetry of
 $f(x) = -2x^2 + 6x + 3$?

2. Fill in the table. What is the vertex?
 $f(x) = -2x^2 + 6x + 3$

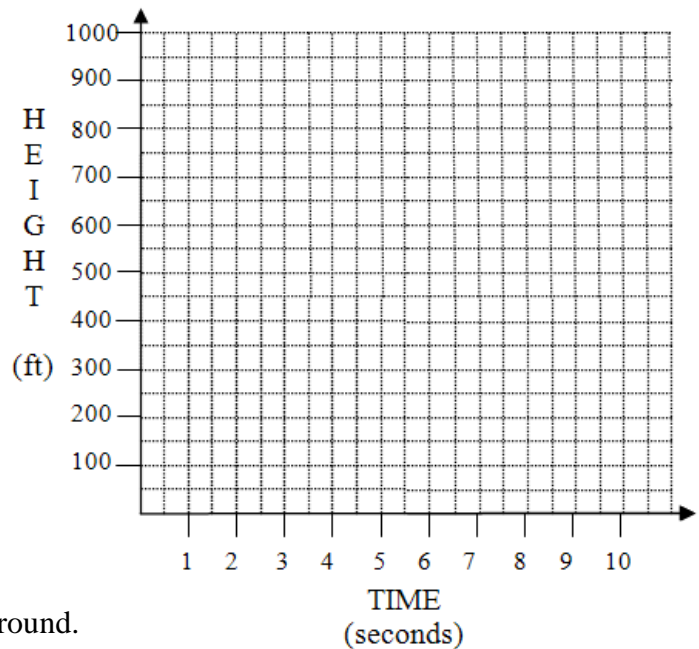
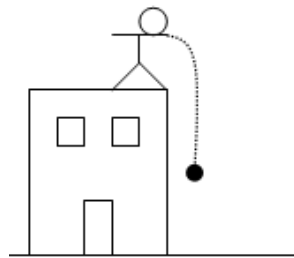
x	y
4	
6	
-2	

VERTEX:

CALCULATOR DROP!

3. Bob drops a Ti-83 graphing calculator off a 1000 foot building. The height, h of the calculator measured over time, t is modeled by the function $h = -16t^2 + 1000$. Fill in the table and sketch a graph!

Time (seconds)	Height (feet)
0	
1	
2	
3	
4	
5	
6	
7	
8	



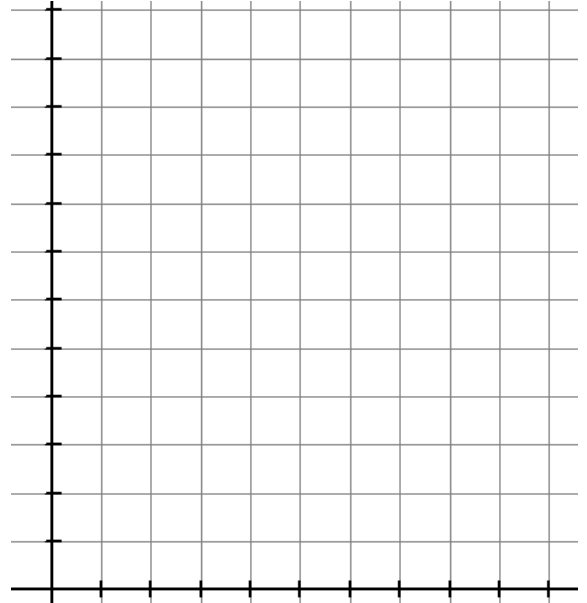
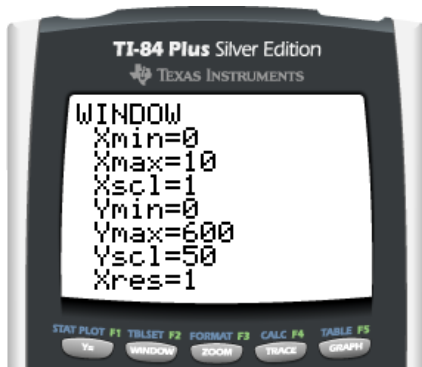
- Use the graph to estimate when the calculator hits the ground.
- What does the y -intercept mean in this problem? What does the x -intercept mean?
- Sarah wants to shoot the calculator out of the air 2.5 seconds after Bob drops it. How many feet above the ground should she aim? (Show the equation used to solve this!)
- Chuck is leaning out of a window that is 240 feet from the ground and plans on trying to catch the calculator.
 - Use the graph above to ESTIMATE how long after Bob drops the calculator will Chuck have to wait to try and catch the calculator.
 - Set up an equation to represent how long after Bob drops the calculator will Chuck have to wait to try and catch the calculator. Do NOT solve the equation!!!

AIR TRAVEL

4. The following equation models US Air Travel from 1987 to 2000 where x stands for the number of years since 1987 and P stands for the number of passengers in millions.

$$P(x) = 1.2x^2 - 3.6x + 443$$

- a. Graph in the calculator with window below. Sketch the graph, be sure to **LABEL** everything!



- b. How many passengers were there in 1991?
- c. Find $P(10)$. What does it mean in this problem?
- d. Find the axis of symmetry.
- e. Find the vertex. What does the vertex mean in this problem?
- f. Do you think that this algebraic model is still valid for the year 2011. Explain why or why not.

