Name: _____ Class Period: _____

5.4

Algebra I Agenda

Don't forget the last page!

				Stamp
Monday	3/16/2015	**Objective:**	Introduction to Quadratics Day 1	
		Assignment:	Practice #1-10	
Tuesday	3/17/2015	**Objective:**	Quadratics Day 2	
		Assignment:	Practice #1-9	
Wednesday	3/18/2015	**Objective:**	Quadratics Day 3	
		Assignment:	Practice #1-10	
Thursday	3/19/2015	**Objective:**	Review	
		Assignment:	Practice #1-12	
Friday	3/20/2015	**Objective:**	Quiz	
		Assignment:	5.4 Due Today	

Warm-Up Grade: _____   Final Weekly HW Grade: _____

Bellwork

Week of _____ - _____

Monday

thursday

TueSday

Friday

Wednesday

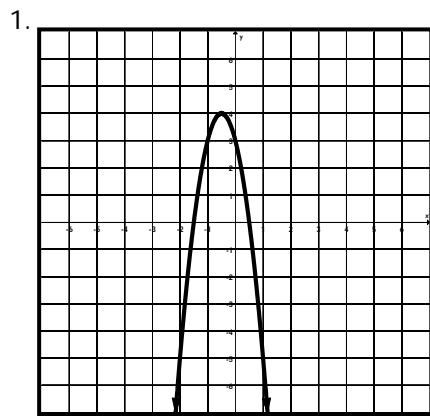## CHALLENGE

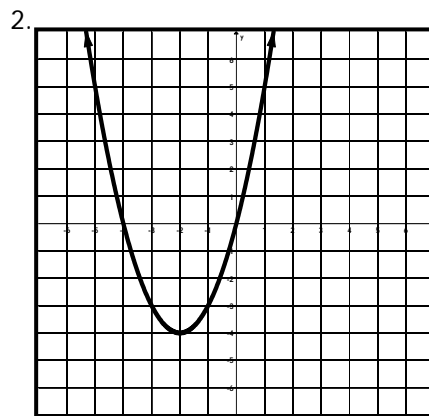**Practice – Introduction to Quadratic Functions**   **pp 590-605**

Name _____   Date _____   Period _____

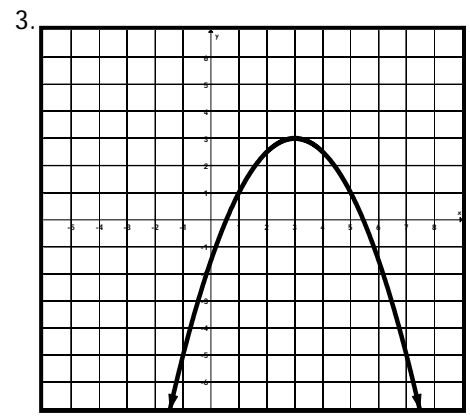**State the domain and range of each quadratic function graphed below.**

1.

Domain: _____

Range: _____

2.

Domain: _____

Range: _____

3.

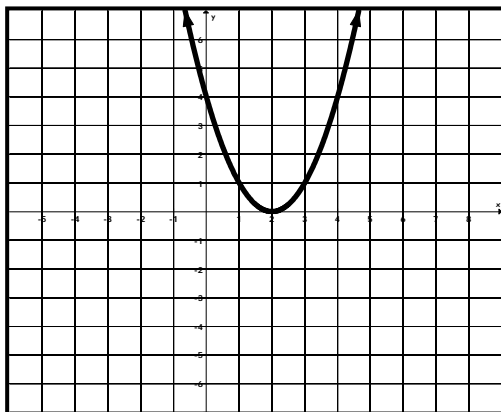Domain: _____

Range: _____

Find the information using the graphs below.

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

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

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

Vertex: _____

Line of Symmetry: _____

Minimum or Maximum
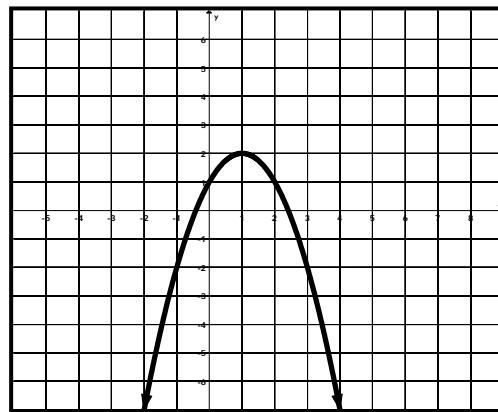
Concavity: _____

$a =$ _____, $b =$ _____

Vertex: _____

Axes of Symmetry: _____

Minimum or Maximum

Concavity: _____

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 $y = x^2$.

A

C

B

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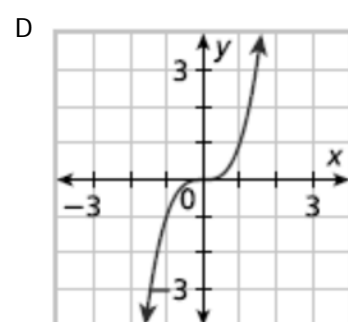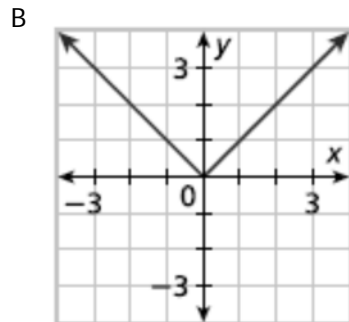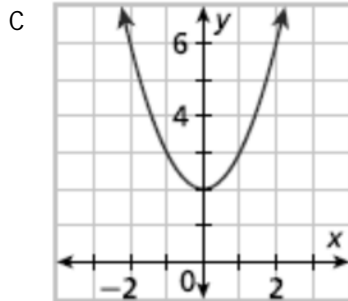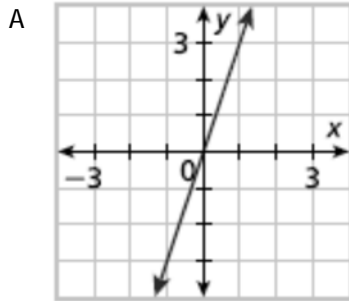
9. Which of the following functions has a graph with an axis of symmetry of $x = -\dfrac{1}{2}$?

    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 $y = x^2$

Practice – Introduction to Quadratic Functions Day 2   **pp 590-611**

Name _____ Date _____ Period _____

Graph the following parabolas.

1. $f(x) = x^2 - 2x - 3$

    Line of Symmetry: _____
    Vertex: _____

2. $y = -(x - 3)^2$

    Line of Symmetry: _____
    Vertex: _____

Two Values:

x	y

Two Values:

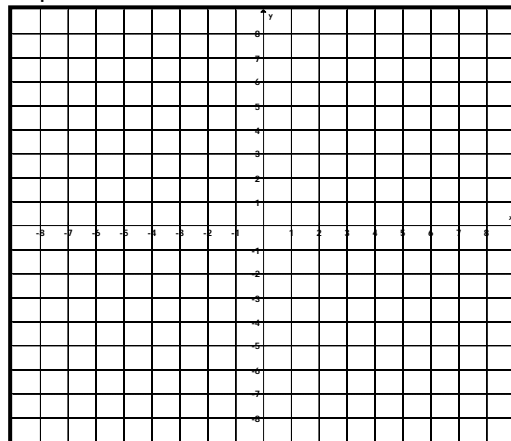| x	y

Graph:
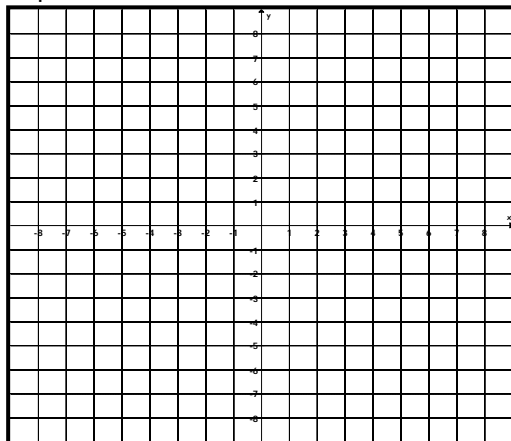
Graph:

Find the vertex of the following quadratics.

3. $y = 5x^2 - 10x + 3$

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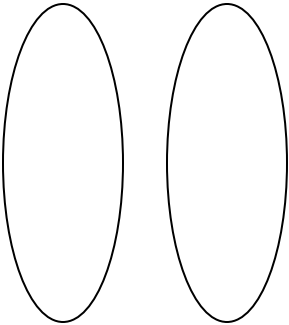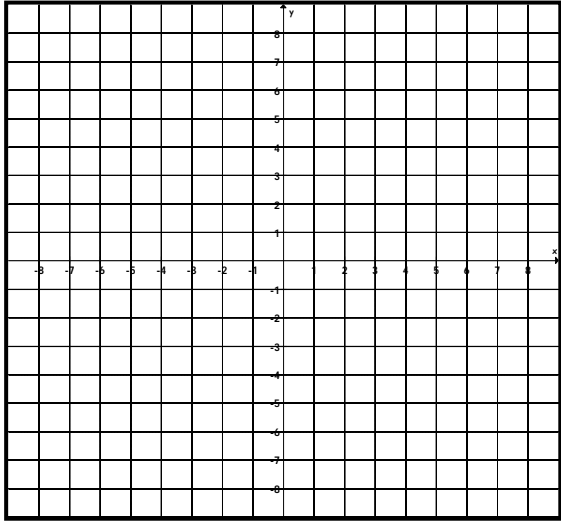
5. $y + 7 = 4x - x^2$

6. For the graph of $f(x) = 4x^2 - 8x + 4$, what is the x-coordinate of its vertex?

Show all of the indicated representations of the function below.

7. $f(x) = x^2 + 4$

TABLE	MAPPING	GRAPH

x	y
-2	
-1	
0	
1	
2	

8. Which of the following quadratic functions has a maximum?

A $2x^2 - y = 3x - 2$

B $y = x^2 + 4x + 16$

C $y - x^2 + 6 = 9x$

D $y + 3x^2 = 9$

9. Which of the following mappings best represents the function $f(x) = -x^2 + 3$?

F

x	$f(x)$
-2	7
1	2
2	
3	6

H

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

G

x	$f(x)$
-2	-1
1	2
2	
3	-6

J

x	$f(x)$
-1	-2
2	1
-1	2
-6	3
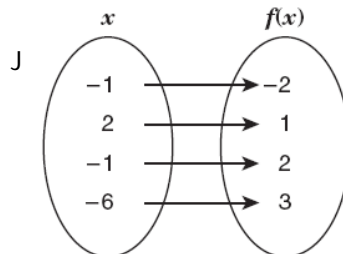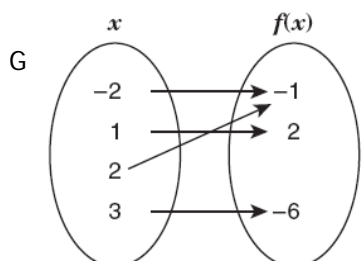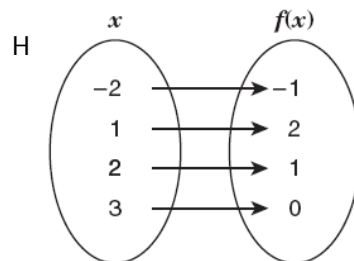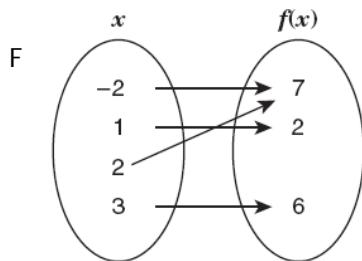
Practice – Introduction to Quadratic Functions Day 3   **pp 590-605**

Name _____ Date _____ Period _____

Tell whether each function is linear, quadratic, or neither.

1. $-3x^2 + x = y - 11$

2.

x	-2	-1	0	1	2
y	-4	0	4	8	12

3. $\{(-10, 15), (-9, 17), (-8, 19), (-7, 21), (-6, 23)\}$

4. $y = -3x + 20$

5.

x	y
-4	8
-2	2
0	0
2	2
4	8

6. A function is described by the equation $f(x) = x^2 - 3$. The replacement set for the independent variable is $\{-4, -1, 2, 4\}$. Which of the following is contained in the corresponding set for the dependent variable?

    A   6
    B   2
    C   -1
    D   13

7. Given the function $f(x) = 3x^2 - 5$, what is the value of $f(-2)$?

8. A quadratic function is given below. What is $f(4)$?

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

9. Mark punted a football. The graph below represents the height, h of the football at time, t.
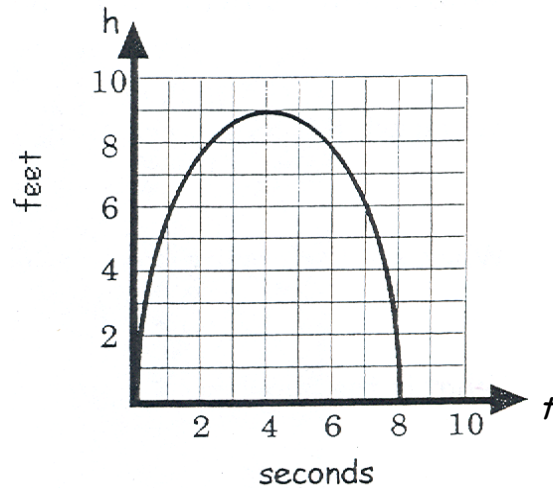
A. Find $f(1)$. _____

B. Find $f(7)$. _____

C. After how many seconds was the ball at its maximum height? _____

D. What was the maximum height of the ball? _____

E. Fill in the table with four points that lie on the graph.

x				
y				

F. Calculate the quadratic equation. _____
   (Round each part of the equation to the nearest tenth.)

10. Calculate the curve of best fit represented by the data in the table below.
    (Round each part of the equation to the nearest tenth.)

x	y
-8	-370
-3	-66
-1	-18
4	79
6	-175

Practice – Transformations of Quadratics   **pp 613-616**

Name _____ Date _____ Period _____

1. Which of these are characteristics of the parent function of a quadratic equation?

    I.   The parent function of a quadratic equation has the vertex at (0, 0).

    II. The parent function of a quadratic equation opens downward.

    III. The parent function of a quadratic equation has the y-axis as its line of symmetry.

    A I and II only
    B I and III only
    C II and III only
    D I, II, and III

2. If the graph of the equation $f(x) = x^2 - 2$ is translated 5 units down, what will be the equation of the new graph?

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

    B $f(x) = x^2 - 7$

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

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

3. Toni drew the graph of $y = x^2$ on a coordinate plane. She then vertically stretched $y = x^2$ by a scale factor of 3. Which of these ordered pairs will Toni's second graph pass through?

    A   (-1, 2)
    B   (2, 9)
    C   (3, 15)
    D   (4, 48)

4. What is the effect on the graph of the equation $y = -4x^2$ when the equation is changed to $y = 4x^2$?

    A   The graph of $y = 4x^2$ is translated 8 units down.

    B   The graph of $y = 4x^2$ is a reflection of $y = -4x^2$ across the x-axis.

    C   The graph of $y = 4x^2$ is translated 8 units up.

    D   The graph of $y = 4x^2$ is a reflection of $y = -4x^2$ across the y-axis.

5. The graph of $y = 15x^2 + c$ is a parabola with a vertex at the origin. Which of the following is true about the value of c?

    A $c > 0$
    B $c < 0$
    C $c = 0$
    D $c = 15$

6. Which equation will produce the widest parabola when graphed?

    A $y = 4x^2$

    B $y = -9x^2$

    C $y = -0.9x^2$

    D $y = 0.4x^2$

7. Which of the following describes the translation of the graph of the equation $y = x^2 - 1$ to the graph of the equation $y = 2x^2 + 1$?

    A   The graph is wider and shifted 1 unit up.
    B   The graph is narrower and shifted 1 unit up.
    C   The graph is wider and shifted 2 units up.
    D   The graph is narrower and shifted 2 units up.

8. Which statement describes what happens to the graph of $y = ax^2$ when the value of a is changed from 1 to 6?

   A The graph translates 6 units up.
   B The graph translated 6 units to the right.
   C The graph narrows.
   D The graph widens.

9. How does the graph of $f(x) = x^2$ differ from the graph of $g(x) = x^2 + 5$?

   A The graph of $g(x)$ is wider than the graph of $f(x)$.
   B The graph of $g(x)$ is shifted down from the graph of $f(x)$.
   C The graph of $g(x)$ is shifted up from the graph of $f(x)$.
   D The graph of $g(x)$ is narrower than the graph of $f(x)$.

10. Which shows the functions correctly listed in order from widest to narrowest graph?

   A $y = -5x^2$, $y = -\dfrac{1}{5}x^2$, $y = \dfrac{2}{3}x^2$, $y = 7x^2$

   B $y = -\dfrac{1}{5}x^2$, $y = \dfrac{2}{3}x^2$, $y = -5x^2$, $y = 7x^2$

   C $y = \dfrac{2}{3}x^2$, $y = -\dfrac{1}{5}x^2$, $y = 7x^2$, $y = -5x^2$

   D $y = -5x^2$, $y = 7x^2$, $y = -\dfrac{1}{5}x^2$, $y = \dfrac{2}{3}x^2$

11. What is the effect on the graph of the equation $y = 3x^2 + 3$ when the equation is changed to $y = 0.3x^2 + 3$?

   A The graph of $y = 0.3x^2 + 3$ is translated 3 units down.

   B The graph of $y = 0.3x^2 + 3$ is narrower than the graph of $y = 3x^2 + 3$.

   C The graph of $y = 0.3x^2 + 3$ is translated 3 units up.

   D The graph of $y = 0.3x^2 + 3$ is wider than the graph of $y = 3x^2 + 3$.

12. The graph below represents $y = x^2 - 7$.
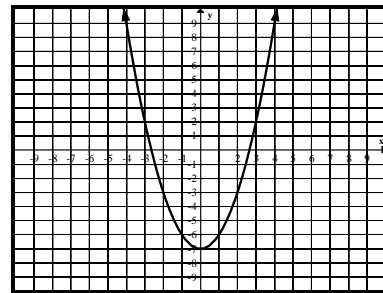
   A If the graph of the function was translated 8 units up, what would be the equation of the new function?

   B What would the domain and range be of the new function?

Name _____ Date _____ Class _____

Test Preparation Practice
Algebra 1

A.2.B Identify the mathematical domains and ranges and determine reasonable domain and range values for given situations, both continuous and discrete.

Solve each problem. Choose the best answer for each question and record your answer on the Student Answer Sheet. Figures are not drawn to scale

1. What is the range of the function
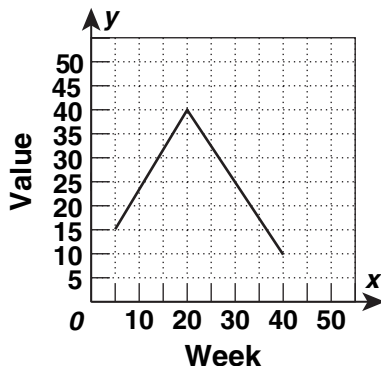 $f(x) = 3x^2 + 2$ if the domain is $\{-3, 0, 4\}$?

   A $\{29, 2, 14\}$

   B $\{-25, 2, 19\}$

   C $\{-3, 0, 4\}$

   D $\{29, 2, 50\}$

2. What is the range of the function shown in the table?

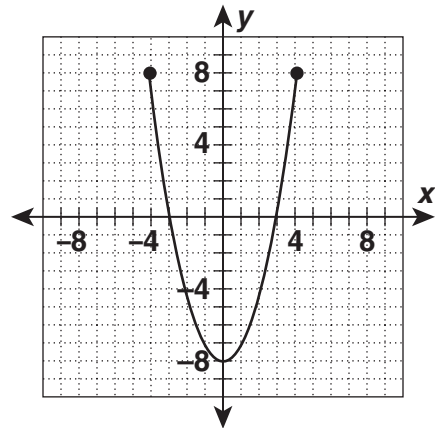 | x | -3 | 0 | 1 | 3 |
   |------|------|---|-----|---|
   | $f(x)$ | 4 | 1 | 1.5 | 4 |

   F $\{-3, 0, 1, 3\}$

   G $\{1, 1.5, 4\}$

   H $\{-3, 0, 1, 1.5, 3, 4\}$

   J $\{2, 0.5, 0.75\}$

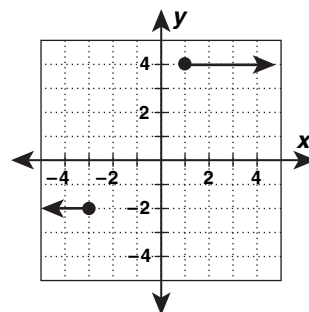3. The value of a stock is graphed below. What is the domain of the function?

   A $x > 5$

   B $5 \leq x \leq 40$

   C $y > 15$

   D $15 \leq x \leq 40$

4. What is the domain of the function shown on the graph?

   F $-3 < x < 3$

   G $-8 < x < 8$

   H $-4 \leq x \leq 4$

   J $-8 \leq x \leq 8$

5. What is the range of the function graphed?

   A $y > -3$ or $y > 4$

   B $-2 \leq y \leq 1$

   C $y = -2$ or $y = 4$

   D All real numbers

Holt Algebra 1