



DeSoto
COUNTY SCHOOLS

Yearlong Algebra I

Week 4

Name: _____

Date: _____

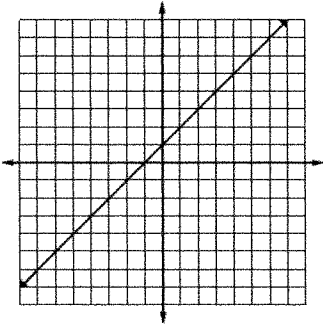
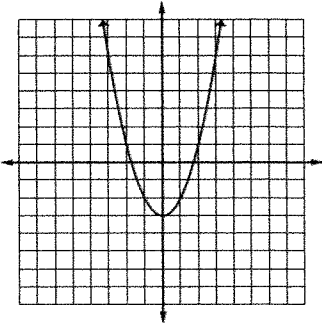
Topic: _____

Class: _____

Main Ideas/Questions

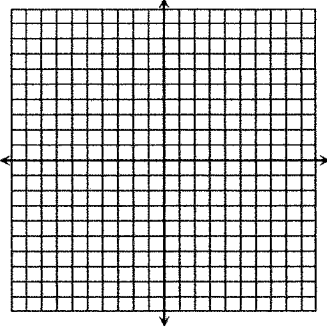
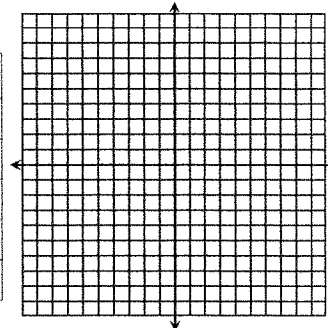
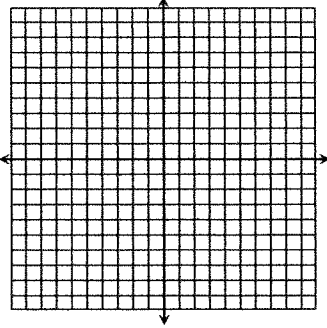
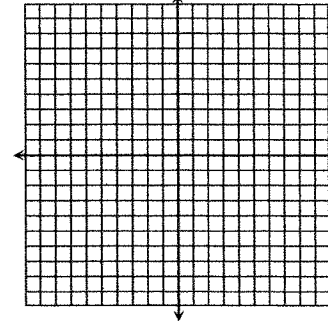
LINEAR vs. QUADRATIC Models

Notes/Examples

LINEAR	QUADRATIC
	
Equation: _____	Equation: _____

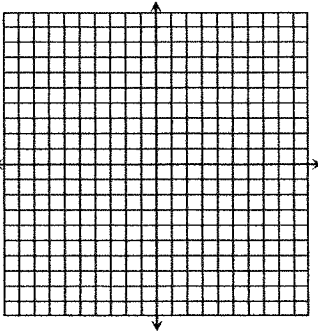
Writing EQUATIONS

Directions: Use a graph to determine the model. Then, write an equation to represent the data.

<p>1.</p> <table border="1"> <thead> <tr><th>x</th><th>y</th></tr> </thead> <tbody> <tr><td>-2</td><td>-7</td></tr> <tr><td>0</td><td>-3</td></tr> <tr><td>1</td><td>-1</td></tr> <tr><td>3</td><td>3</td></tr> <tr><td>5</td><td>7</td></tr> </tbody> </table>  <p>Linear or Quadratic? _____</p> <p>Equation: _____</p>	x	y	-2	-7	0	-3	1	-1	3	3	5	7	<p>2.</p> <table border="1"> <thead> <tr><th>x</th><th>y</th></tr> </thead> <tbody> <tr><td>-3</td><td>2</td></tr> <tr><td>-2</td><td>-1</td></tr> <tr><td>-1</td><td>-2</td></tr> <tr><td>0</td><td>-1</td></tr> <tr><td>1</td><td>2</td></tr> </tbody> </table>  <p>Linear or Quadratic? _____</p> <p>Equation: _____</p>	x	y	-3	2	-2	-1	-1	-2	0	-1	1	2
x	y																								
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<p>3.</p> <table border="1"> <thead> <tr><th>x</th><th>y</th></tr> </thead> <tbody> <tr><td>1</td><td>-5</td></tr> <tr><td>2</td><td>-2</td></tr> <tr><td>3</td><td>-1</td></tr> <tr><td>4</td><td>-2</td></tr> <tr><td>5</td><td>-5</td></tr> </tbody> </table>  <p>Linear or Quadratic? _____</p> <p>Equation: _____</p>	x	y	1	-5	2	-2	3	-1	4	-2	5	-5	<p>4.</p> <table border="1"> <thead> <tr><th>x</th><th>y</th></tr> </thead> <tbody> <tr><td>-4</td><td>7</td></tr> <tr><td>-2</td><td>6</td></tr> <tr><td>0</td><td>5</td></tr> <tr><td>2</td><td>4</td></tr> <tr><td>4</td><td>3</td></tr> </tbody> </table>  <p>Linear or Quadratic? _____</p> <p>Equation: _____</p>	x	y	-4	7	-2	6	0	5	2	4	4	3
x	y																								
1	-5																								
2	-2																								
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x	y																								
-4	7																								
-2	6																								
0	5																								
2	4																								
4	3																								

5.

x	y
-2	-2
-1	1
0	4
1	7
2	10

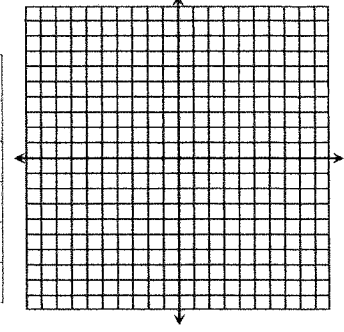


Linear or Quadratic? _____

Equation: _____

6.

x	y
-4	11
-2	6
0	1
2	-4
4	-9

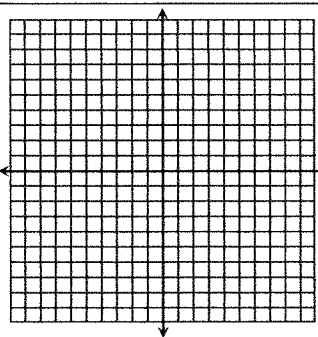


Linear or Quadratic? _____

Equation: _____

7.

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

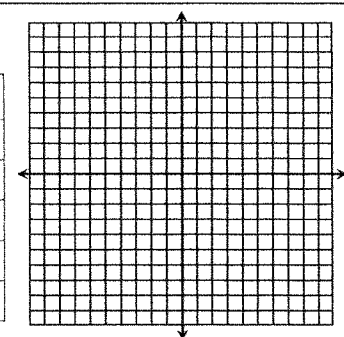


Linear or Quadratic? _____

Equation: _____

8.

x	y
-8	-3
-6	5
-4	9
-2	9
0	5



Linear or Quadratic? _____

Equation: _____

Making PREDICTIONS

9. The value, V , of a computer between 1999 and 2003 is given in the table below. Write an equation for the **line of best fit**, then predict the value of the computer in 2008.

t	1999	2000	2001	2002	2003
V	800	720	640	572	480

10. A coin is thrown off the top of the Statue of Liberty, which is 305 feet from the ground. The height, h , of the coin is recorded after each second, t , in the table below. Write an equation for the **curve of best fit**, then predict the height of the coin after 7 seconds.

t	h
0	305
1	367
2	397
3	395
4	361

Problems

Solve each equation by using the Quadratic Formula.

1. $x^2 - x - 2 = 0$

2. $x^2 - x - 3 = 0$

3. $-3x^2 + 2x + 1 = 0$

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

5. $7x = 10 - 2x^2$

6. $-6x^2 - x + 6 = 0$

7. $6 - 4x + 3x^2 = 8$

8. $4x^2 + x - 1 = 0$

9. $x^2 - 5x + 3 = 0$

10. $0 = 10x^2 - 2x + 3$

11. $x(-3x + 5) = 7x - 10$

12. $(5x + 5)(x - 5) = 7x$

Problems

Complete the square to write each equation in graphing form. Then state the vertex.

1. $f(x) = x^2 + 6x + 7$

2. $f(x) = x^2 + 4x + 11$

3. $f(x) = x^2 + 10x$

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

5. $f(x) = x^2 - 6x + 9$

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

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

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

9. $f(x) = x^2 + 5x + 1$

10. $f(x) = x^2 - \frac{1}{3}x$

Unit 8 Test Study Guide

(Quadratic Equations)

Name: _____

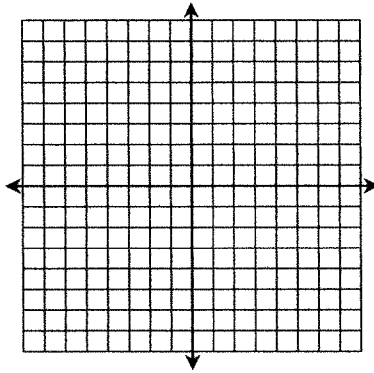
Date: _____ Per: _____

Topic 1: Graphing Quadratic Equations (from Standard Form and Vertex Form)

Graph each equation using a table of values. Identify all key characteristics.

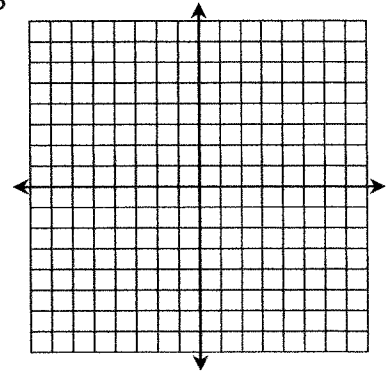
1. $y = x^2 - 2x - 5$

x	y



2. $y = -x^2 + 10x - 28$

x	y



Axis of Symmetry:

Vertex:

Domain:

Range:

Axis of Symmetry:

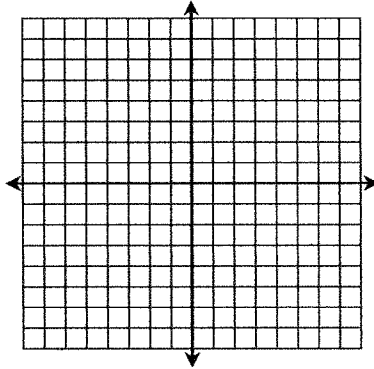
Vertex:

Domain:

Range:

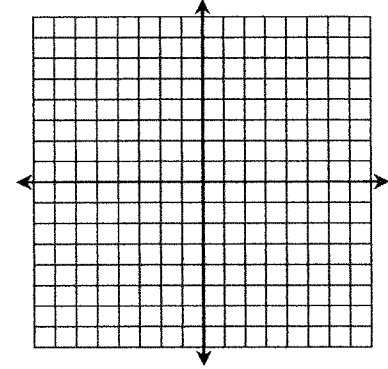
3. $y = 2x^2 + 4x$

x	y



4. $y = -x^2 + 7$

x	y



Axis of Symmetry:

Vertex:

Domain:

Range:

Axis of Symmetry:

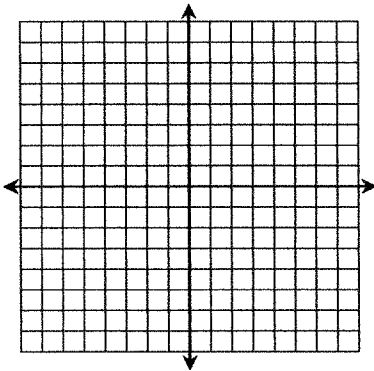
Vertex:

Domain:

Range:

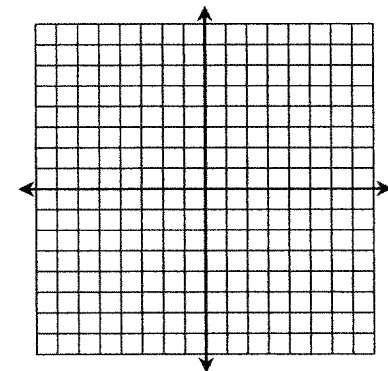
5. $y = (x+3)^2 - 8$

x	y



6. $y = -3(x-1)^2$

x	y



Axis of Symmetry:

Vertex:

Domain:

Range:

Axis of Symmetry:

Vertex:

Domain:

Range:

Topic 2: Vertex Form & Transformations

Describe the transformations from the parent function given each equation.		
7. $y = -x^2 + 6$	8. $y = (x + 4)^2 - 1$	9. $y = 2(x - 5)^2 + 4$
10. If the graph of the function $y = x^2$ is reflected over the x -axis, then translated two units left, write an equation to represent the function.		11. If the graph of the function $y = x^2$ is vertically compressed by a factor of $\frac{1}{4}$, then translated seven units right and one unit down, write an equation to represent the function.

Topic 3: Quadratic Roots (Zeros)

Graph each function, identify the zeros, then write the equation in factored form, if possible.		
12. $y = x^2 + 8x + 15$	13. $y = -2x^2 + 8x - 8$	14. $y = -x^2 - 1$
Zeros:	Zeros:	Zeros:
Factored Form:	Factored Form:	Factored Form:
Write each equation in factored form. Then, identify the zeros.		
15. $y = (x + 1)^2 - 4$	16. $y = 2(x - 3)^2 - 18$	17. $y = -(x + 5)^2 + 9$
Factored Form:	Factored Form:	Factored Form:
Zeros:	Zeros:	Zeros:

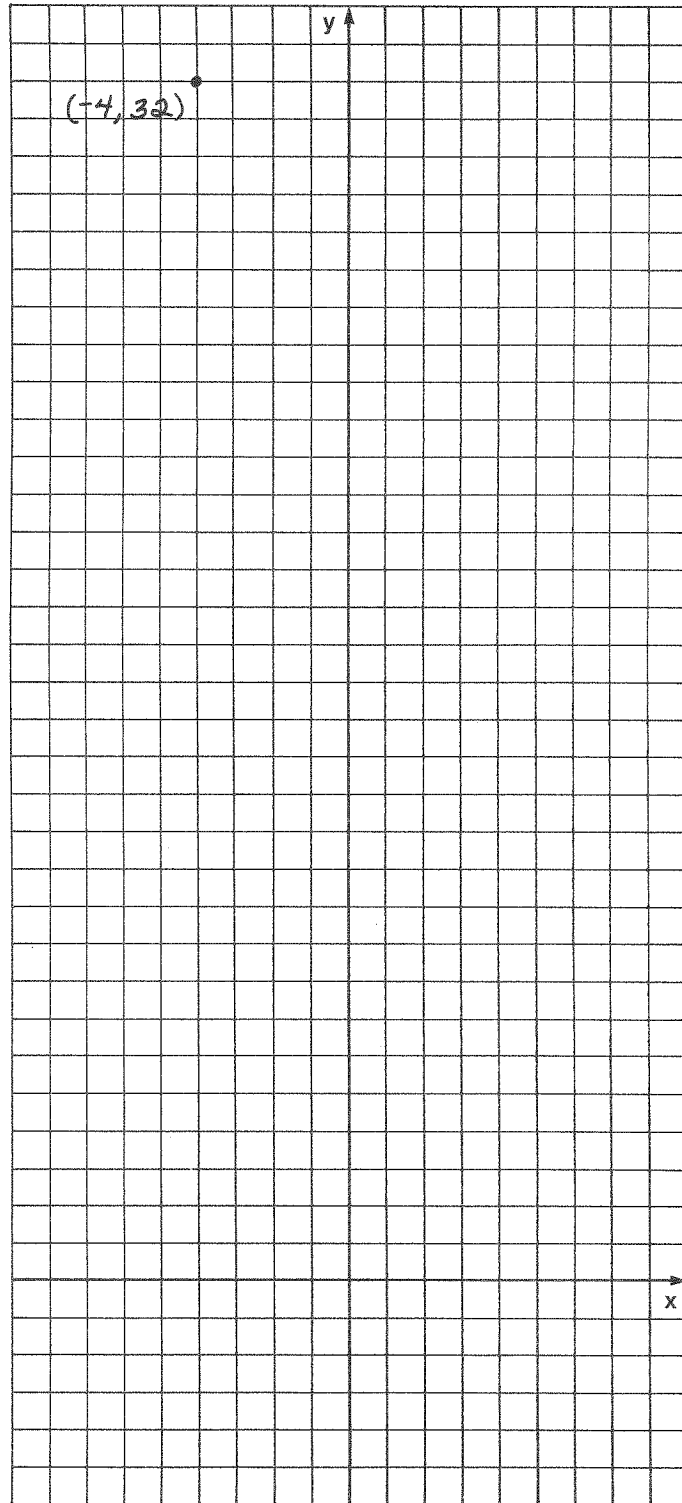
List the correct information about the graphs of the functions specified by each equation.

	equation	vertex	maximum or minimum	line of symmetry	x-intercept	comparison to $x = y^2$
1.	$y = (x + 3)^2 - 4$	$(-3, -4)$	<i>minimum</i>	$x = -3$	$(-1, 0)$ $(-5, 0)$	<i>same</i>
2.	$y = (x - 1)^2 + 2$					
3.	$y = 2(x - 4)^2 + 3$					
4.	$y = -5(x + 1)^2 - 4$					
5.	$y = \frac{2}{3}(x - 2)^2 + 4$					
6.	$y = -\frac{5}{3}(x - 4)^2 + 1$					
7.	$y = 4(x - 1)^2 - 6$					
8.	$y = \frac{3}{8}(x + 1)^2 - 5$					
9.	$y = -\frac{2}{3}(x + 3)^2 - 4$					
10.	$y = -10(x - 1)^2 + 1$					

Complete the table, locate the points on the grid, and connect the points to make a smooth curve. Answer the questions about the graph.

Given $\{(x, y): y = 2x^2\}$

x	y
-4	32
-3	
-2	
-1	
0	
1	
2	
3	
4	



1. What are the coordinates of the vertex? _____
2. Does the curve have a maximum or a minimum point? _____
3. What is the equation of the line of symmetry? _____
4. What are the coordinates of the x-intercept(s)? _____
5. Does the graph open wider or narrower than the graph of $y = x^2$?
