

Day 2 - Quadratic Transformations (all)  
Practice Assignment

Name: \_\_\_\_\_  
Date: \_\_\_\_\_ Block: \_\_\_\_\_

Describe the transformations of the parent graph for each equation. Then name vertex.

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

UP 5

Vertex:  $(0, 5)$

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

reflected  
LT 9  
DN 2

Vertex:  $(-9, -2)$

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

shrink  $\frac{1}{2}$   
RT 10

Vertex:  $(10, 0)$

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

reflected  
stretched 5  
UP 2

Vertex:  $(0, 2)$

5.  $f(x) = \frac{2}{3}(x-8)^2$

shrink  $\frac{2}{3}$   
RT 8

Vertex:  $(8, 0)$

6.  $f(x) = (x+1)^2 + 4$

LT 1 UP 4

Vertex:  $(-1, 4)$

Write the quadratic equation in vertex form that has been...

$f(x) = (x-4)^2 + 3$  7. shifted to the right 4 and up 3

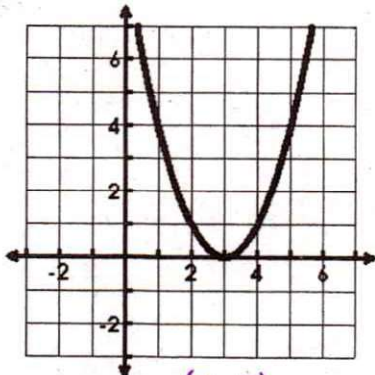
$y = -(x+11)^2$  8. reflected over the x-axis and shifted left 11

$f(x) = \frac{1}{4}x^2 - 4$  9. moved down 4 and shrunk by  $\frac{1}{4}$

$f(x) = -(x+9)^2 - 8$  10. reflected over the x-axis, shifted left 9 and down 8.

Describe the transformations and write an equation for each quadratic function. Assume all functions have no stretches or shrinks.

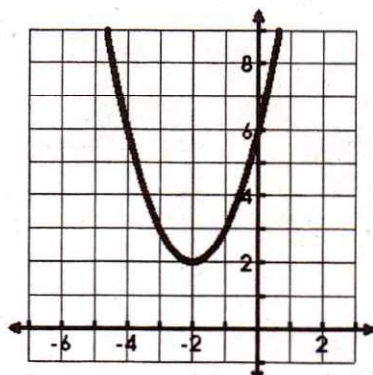
11.



$(3, 0)$  RT 3

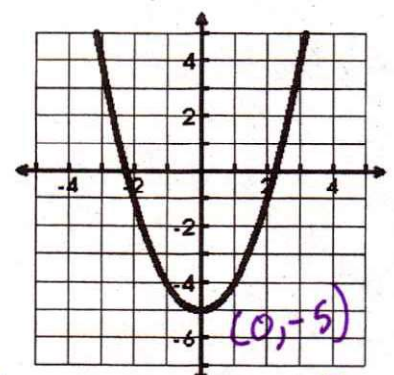
$f(x) = (x-3)^2$

12.



$(-2, 2)$   
Left 2  
UP 2  
 $y = (x+2)^2 + 2$

13.



Down 5

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

14. Describe and correct the errors in analyzing the equation of  $f(x) = -6(x - 1)^2 + 4$ .

**X** NT 1

The graph is shifted up four units and shifted ~~left~~ one unit, followed by a stretch by a factor of 6, followed by a reflection over the x-axis. The vertex is (1, 4).

**X** UP 4 LEFT 1

The graph is shifted up 4 units and shifted right 4 units, followed by a stretch by a factor of 6, followed by a reflection over the x-axis of the graph of the parent quadratic function. The vertex is (-1, 4).

**X** (1, 4)

15-20. Match each function to its graph.

15.  $g(x) = 2(x - 1)^2 - 2$  C

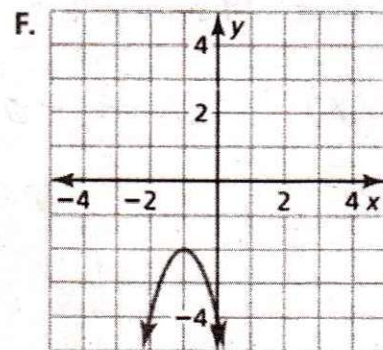
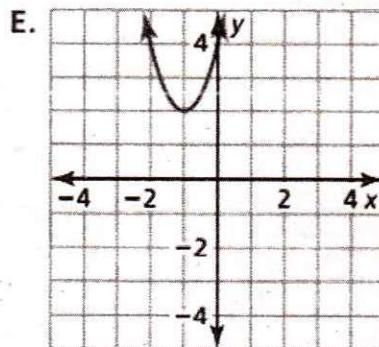
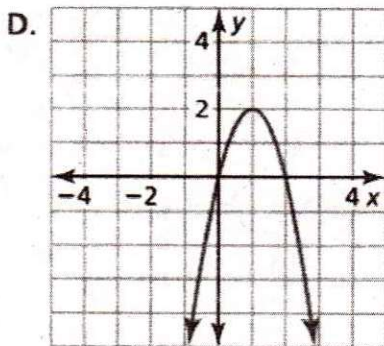
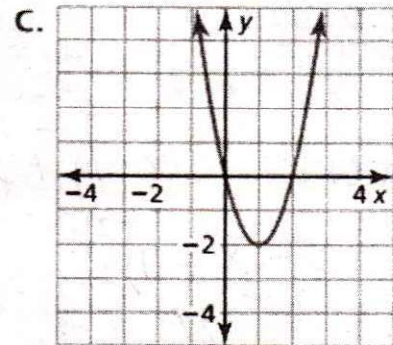
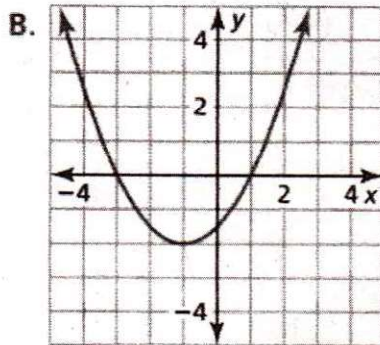
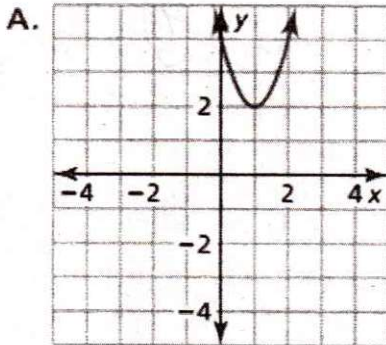
16.  $g(x) = \frac{1}{2}(x + 1)^2 - 2$  B

17.  $g(x) = -2(x - 1)^2 + 2$  D

18.  $g(x) = 2(x + 1)^2 + 2$  E

19.  $g(x) = -2(x + 1)^2 - 2$  F

20.  $g(x) = 2(x - 1)^2 + 2$  A



Directions: Describe each transformation and name the vertex.

Graph	Vertex	Describe the transformation(s)
$y = x^2 + 4$	$(0, 4)$	• up 4
$y = x^2 - 1$	$(0, -1)$	down 1
$y = 2x^2$	$(0, 0)$	stretch by 2
$y = -x^2 + 6$	$(0, 6)$	- reflected - up 6
$y = \frac{1}{4}(x-3)^2$	$(3, 0)$	- shrink by $\frac{1}{4}$ - RT 3
$y = -3(x+2)^2$	$(-2, 0)$	- reflected - stretched by 3 - left 2
$y = (x-1)^2 + 3$	$(1, 3)$	- RT 1 - up 3
$y = 2(x+6)^2$	$(-6, 0)$	- stretch by 2 - left 6
$y = (x-3)^2 - 5$	$(3, -5)$	- RT 3 - down 5
$y = -\frac{1}{2}(x+4)^2 + 5$	$(-4, 5)$	- reflected - shrink $\frac{1}{2}$ - left 4 - RT 5