Unit 8 Day 2 HW Graphing Quadratic Functions

Name: _**Key**_

PART I: Describe the transformations (in the correct order) being performed on the quadratic parent function.

1. $y = 10x^2 - 25$

① vert. stretch by 10
② down 25

2. $y = -\dfrac{1}{6}x + 4$

① reflection over x-axis
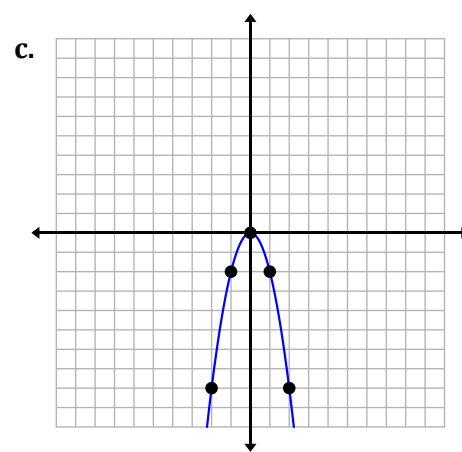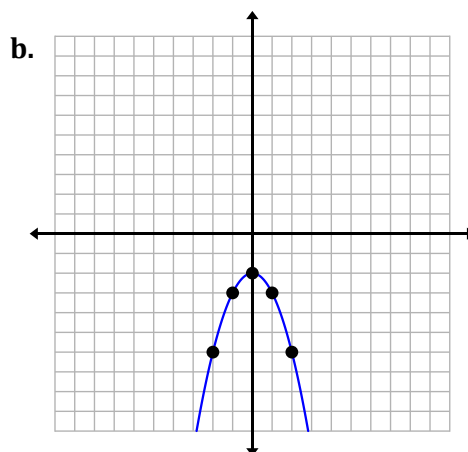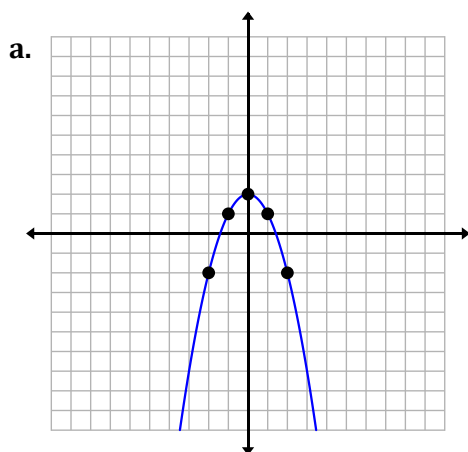② vert. shrink by 1/6
③ up 4

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

① reflection over y-axis
② up 1

PART II: Match the transformed function with its graph.
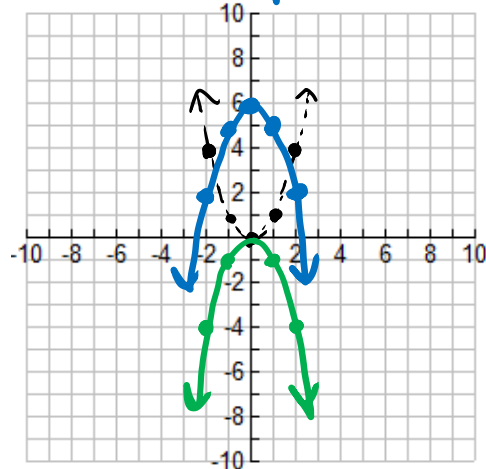
4. $y = -x^2 - 2$ __b__

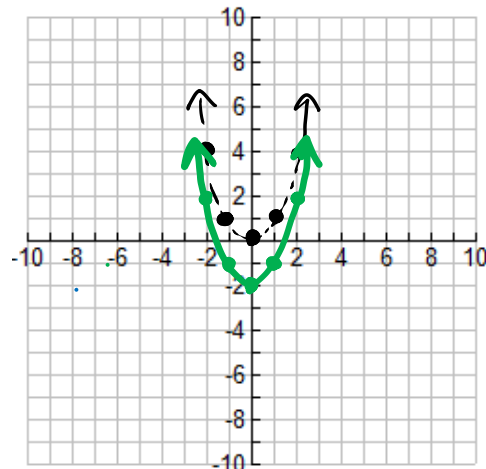**5.** $y = -x^2 + 2$ __a__

6. $y = -2x^2$ __c__

a.

b.

c.

PART III: Describe the transformations (in the correct order) being performed on the quadratic parent function. Then, graph the function with at least five accurate points.
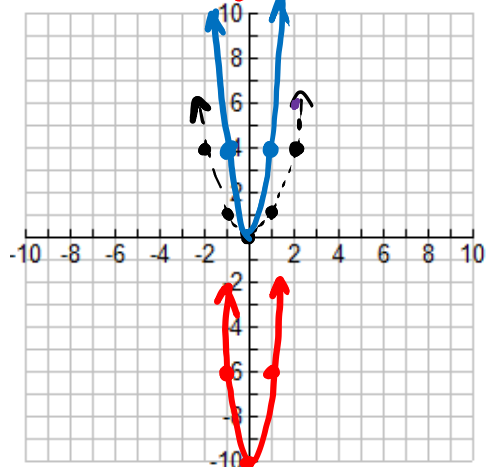
7. $y = -x^2 + 6$
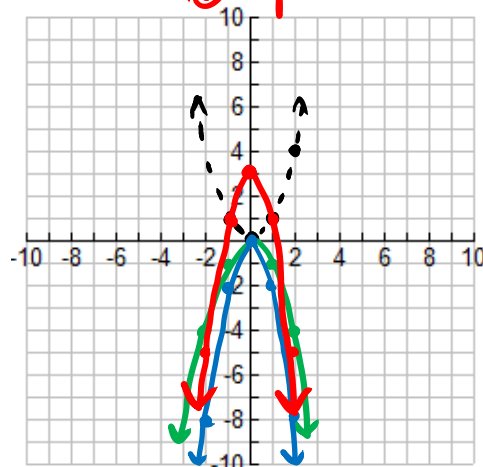
① refl. over x-axis
② up 6

8. $y = x^2 - 2$

① down 2

9. $y = 4(-x)^2 - 10$ ① refl. over y-axis ② vert. stretch by 4 ③ down 10

10. $y = -2x^2 + 3$ ① refl. over x-axis ② vert. stretch by 2 ③ up 3

PART IV: Write an equation of a *quadratic function* that has been transformed accordingly.

11. Shifted down 15

$$y = x^2 - 15$$

12. Reflected over the x-axis, then vertically stretched by a factor of 5

$$y = -5x^2$$

13. Vertically shrunk by a factor of 3, then shifted up 14

$$y = \frac{1}{3}x^2 + 14$$

14. Reflected over the y-axis, vertically shrunk by a factor of 2, then shifted down 10

$$y = \frac{1}{2}(-x)^2 - 10$$

PART V: Write an equation of a quadratic function to match each graph below. *Pay attention to the pattern!*

15.

1, 3, 5, ...
down 7

$$y = x^2 - 7$$

16.

a = 2
(2, 6) ...
up 1

$$y = 2x^2 + 1$$