GSE Algebra I
Homework: Quadratic Transformations

Name: AK
Date: _____ Period: _____

Describe the transformation(s) done to: $y = x^2$

1. $y = -x^2$
reflect over x-axis

2. $y = x^2 + 5$
shift up 5

3. $y = (x-4)^2$
shift right 4

4. $y = \frac{1}{2}x^2 - 1$
shrink by $\frac{1}{2}$
shift down 1

5. $y = 3x^2$
stretch by 3

6. $y = -3(x+2)^2 + 5$
reflect over x-axis
stretch by 3
shift left 2
shift up 5

Write an equation for a quadratic function with the following characteristics.

7. Shift up 7 units and left 3 units.
$f(x) = (x+3)^2 + 7$

8. Shift down 4 units and right 2 units.
$f(x) = (x-2)^2 - 4$

9. Reflected over the x-axis and shifted down 3.
$f(x) = -x^2 - 3$

10. Vertical stretch by factor of 2 and shifted right 4.
$f(x) = 2(x-4)^2$

11. Vertical shrink by factor of ¼ and shifted down 8.
$f(x) = \frac{1}{4}x^2 - 8$