GSE Algebra I HW: Graphing Quadratics

Name: _____ Date: _____

Vertex Form of a Quadratic

UNIT QUESTION: How are real life scenarios represented by quadratic functions?
Today's Question: How do we graph quadratics in vertex form using transformations? MCC9-12.F.BF.3

$$y = a(x-h)^2 + k$$

Vertex: (h,k)

Describe in words the transformations of the parent graph for each equation.

1. $f(x) = x^2 + 5$
   - a:_____
   - h:_____
   - k:_____

2. $f(x) = -(x+9)^2 - 2$
   - a:_____
   - h:_____
   - k:_____

3. $f(x) = \frac{1}{2}(x-10)^2$
   - a:_____
   - h:_____
   - k:_____

4. $f(x) = -5x^2 + 2$
   - a:_____
   - h:_____
   - k:_____

5. $f(x) = \frac{2}{3}(x-8)^2$
   - a:_____
   - h:_____
   - k:_____

6. $f(x) = (x+1)^2 + 4$
   - a:_____
   - h:_____
   - k:_____

Write the quadratic equation in vertex form that has been…

_____ 7. shifted to the right 4 and up 3

_____ 8. reflected over the x-axis and shifted left 11

_____ 9. moved down 17

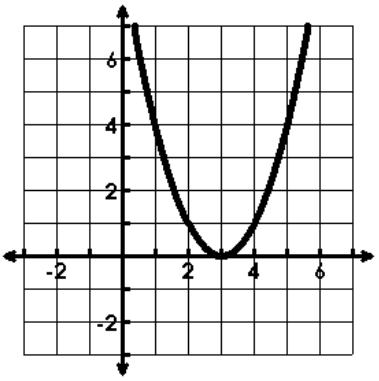
_____ 10. reflected over the x-axis, shifted left 9 and down 8.

Describe in words the transformations and write an equation for each quadratic function.

11. Vertex: _____

- a:_____
- h:_____
- k:_____

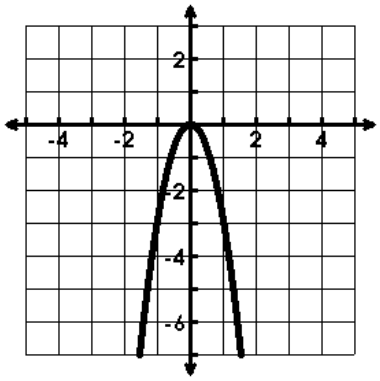
f(x) = _____



12. Vertex: _____

- a:_____
- h:_____
- k:_____

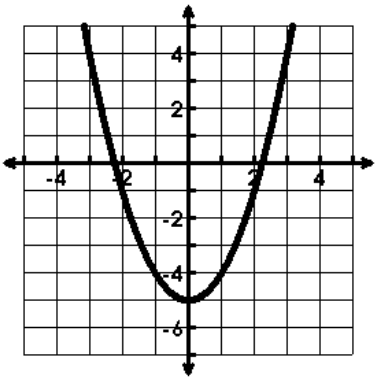
f(x) = _____



13. Vertex: _____

- a:_____
- h:_____
- k:_____

f(x) = _____



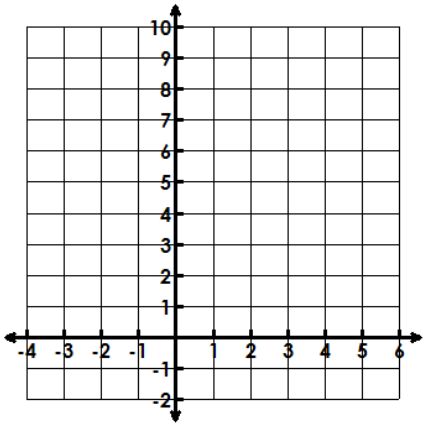
BONUS: Graph the following equations Identify the vertex and the axis of symmetry.

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

Vertex: _____

Axis of Symmetry: x = ____

Opens up or down? _____

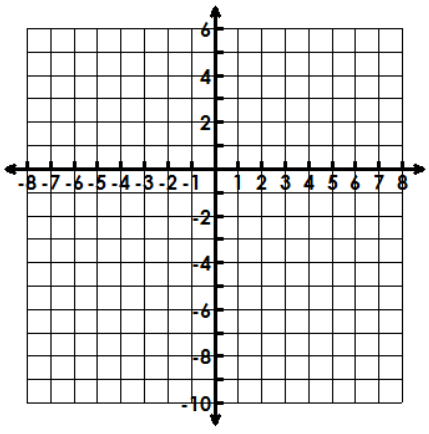


15. $f(x) = -x^2 + 4$

Vertex: _____

Axis of Symmetry: x = ____

Opens up or down? _____



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

Vertex: _____

Axis of Symmetry: x = ____

Opens up or down? _____