

Homework 5.7 Transformations of Quadratic Functions

Answer the following questions as specific as possible.

1. What is the Standard Form of Quadratic Equation? _____

2. What is the Vertex Form of Quadratic Equation? _____

3. Using the Vertex Form of Quadratic Equation, what is the point of vertex? _____

Describe the transformations of the parent graph for each equation.

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

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

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

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

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

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

Write the quadratic equation in vertex form that's performing the given transformations.

_____ 10. shifted to the right 4 and up 3

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

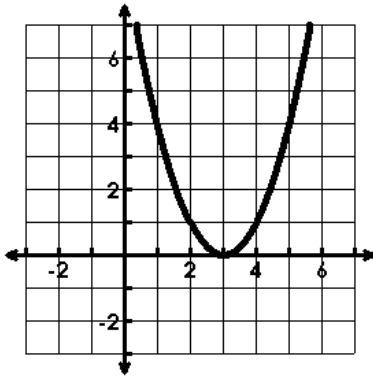
_____ 12. moved down 17

_____ 13. reflected over the x-axis, shifted left 9 and down 8.

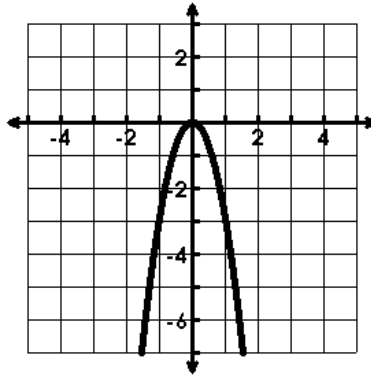
Homework 5.7 Transformations of Quadratic Functions (Page 2)

Using the respective graph's, describe the transformations and write an quadratic equation in vertex form.

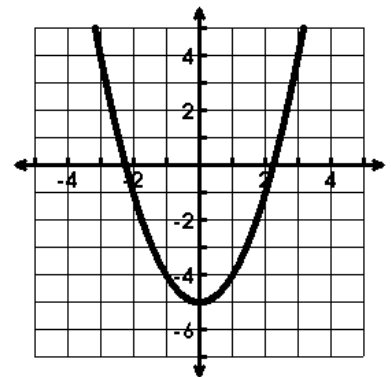
1. Equation: _____
Transformations:



2. Equation: _____
Transformations:

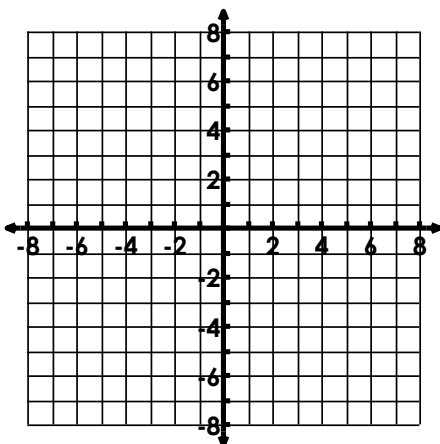


3. Equation: _____
Transformations:

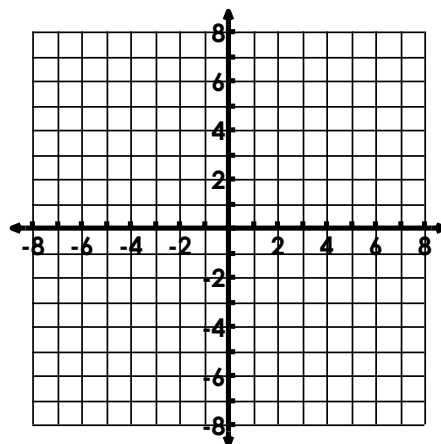


Sketch the following equations Identify the **vertex** and the **axis of symmetry**.

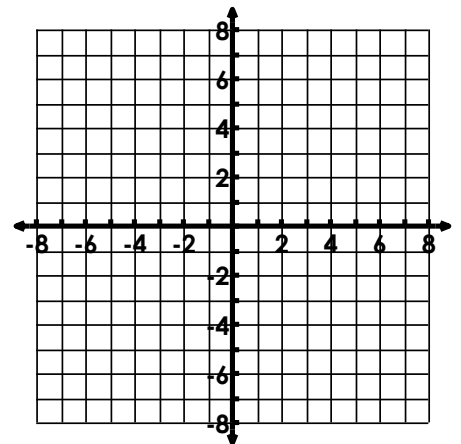
4. $f(x) = 2(x-1)^2$



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



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



5.7 Answers

Page 1 [1] $y = ax^2 + bx + c$ [2] $y = a(x - h)^2 + k$ [3] (h, k) [4] up 5 [5] reflect across x-axis, left 9, down 2

[6] shrink $\frac{1}{2}$, right 10 [7] - reflect across x-axis, stretch 5, up 2 [8] shrink $\frac{2}{3}$, right 8 [9] left 1 up 4

[10] $y = (x - 4)^2 + 3$ [11] $y = -(x + 11)^2$ [12] $y = x^2 - 17$ [13] $y = -(x + 9)^2 - 8$

Page 2 [1] $y = (x - 3)^2$, right 3 [2] $y = -3x^2$, reflection across x-axis, stretch 3 [3] $y = x^2 - 5$, down 5

[4] Vertex: (1, 0), AOS: $x = 1$ [5] Vertex: (0, 4), AOS: $x = 0$ [6] Vertex: (-1, -3), AOS: $x = -1$