From Graph to Equation

Directions: Name which parent function is being used, then describe how the parent function has been transformed. Be sure to be as specific as possible with the transformations! Then write an equation for each.

1. 2.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Directions: Write an equation based on the given graph.

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



From Description to Equation

Directions: Write an equation based on the given transformation.

7. Absolute value function made 5 times as narrow and shifted 2 units up.

8. A radical function is reflected over the y-axis and made twice as wide.

9. A cubic function is reflected over the x-axis, made three times as narrow, and translated up 3 units.

10. A quadratic function is half as wide, shifted 2 units up and 3 units to the left, then reflected over the x-axis.

11. A cubic function translates 3 units down and 7 units to the left.

12. A quadratic function has its vertex at (4, 6).

**Solutions:**

1. quadratic translated up 3 units f(x) = x2 + 3

2. cubic translated right 2 units f(x) = (x – 2)3

3. absolute value twice as wide, left 2 & up 4 units f(x) = ½|x + 2| + 4

4. cubic shifted up 1 and right 1 unit f(x) = (x – 1)3 + 1

5. absolute value shifted right 3 and up 2 units f(x) = |x – 3| + 2

6. radical shifted right 1 and down 3 units f(x) = $\sqrt{x-1}-3$

7. f(x) = 5|x| + 2

8. f(x) = ½ $\sqrt{-x}$

9. f(x) = -3(x)3 + 3

10. f(x) = -2(x + 3)2 + 2

11. f(x) = (x + 7)3 – 3

12. f(x) = (x – 4)2 + 6 because the graph moves right 4 and up 6 units from the origin.