Name ______________________________ Date __________

5.3 Extra Practice

In Exercises 1–6, graph the function. Find the domain and range of the function.

1. $g(x) = -\sqrt{x} + 2$
2. $f(x) = \sqrt[3]{-4x}$
3. $f(x) = \frac{1}{4}\sqrt{x + 5}$
4. $h(x) = (5x)^{1/2} - 2$
5. $g(x) = -2(x - 3)^{1/3}$
6. $h(x) = -\sqrt[5]{x}$

In Exercises 7–12, describe the transformation of *f* represented by *g*. Then graph each function.

7. $f(x) = \sqrt{x}; g(x) = 4\sqrt{x - 2}$
8. $f(x) = \sqrt[3]{x}; g(x) = \sqrt[3]{x - 5} - 1$
9. $f(x) = x^{1/4}; g(x) = \frac{1}{3}(-x)^{1/4}$
10. $f(x) = x^{1/3}; g(x) = \frac{1}{2}x^{1/3} - 3$
11. $f(x) = \sqrt[4]{x}; g(x) = -\sqrt[4]{x - 1} + 3$
12. $f(x) = \sqrt[5]{x}; g(x) = \sqrt[5]{-243x} - 2$

In Exercises 13–15, use technology to graph the function. Then find the domain and range of the function.

13. $g(x) = \sqrt[3]{2x^2 - 3x}$
14. $f(x) = \sqrt{\frac{1}{3}x^2 - x + 2}$
15. $h(x) = \sqrt[3]{3x^2 - 6x + 2}$

In Exercises 16 and 17, write a rule for *g* described by the transformations of the graph of *f*.

16. Let g be a horizontal stretch by a factor of 2, followed by a translation 2 units up of the graph of $f(x) = \sqrt{3x}$.

17. Let g be a translation 1 unit up and 4 units left, followed by a reflection in the y-axis of the graph of $f(x) = \sqrt{-x} - \frac{1}{2}$.

In Exercises 18 and 19, use radical functions to graph the equation of the parabola. Identify the vertex and the direction that the parabola opens.

18. $3y^2 + 5 = x$
19. $x - 3 = -\frac{1}{2}y^2$

In Exercises 20 and 21, use radical functions to graph the equation of the circle. Identify the radius and the intercepts.

20. $x^2 + y^2 = 81$
21. $-y^2 = x^2 - 49$