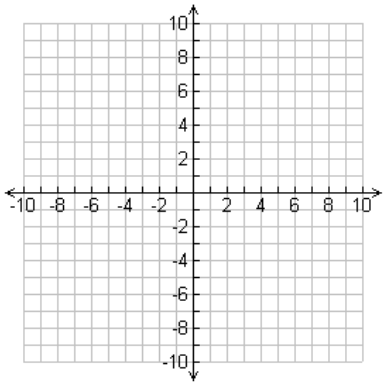
Name: _____

SM3 Unit 6 Review

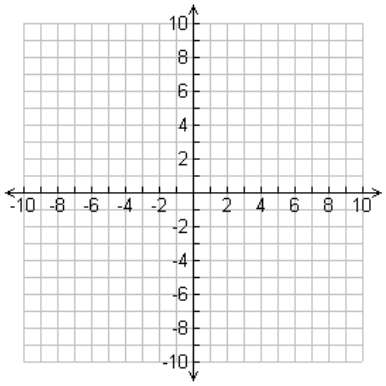
Graph each function and identify the indicated properties. Be sure to include the anchor points and the x- and y-intercepts (if applicable). Round to the nearest hundredth.

1) $y = \sqrt{x+1}$



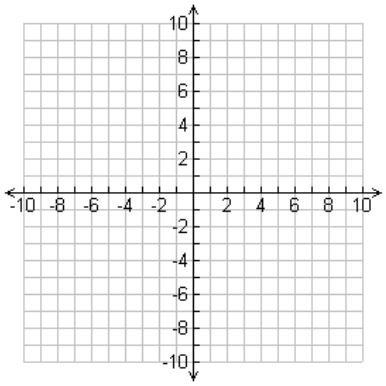
Domain: _____
Range: _____
Max/Min: _____
x-intercept(s): _____
y-intercept: _____
Increasing: _____
Decreasing: _____
Positive: _____
Negative: _____

2) $y = -2\sqrt{x} + 3$



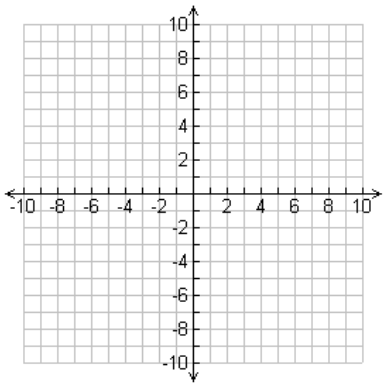
Domain: _____
Range: _____
Max/Min: _____
x-intercept(s): _____
y-intercept: _____
Increasing: _____
Decreasing: _____
Positive: _____
Negative: _____

3) $y = \sqrt{x-2} - 4$



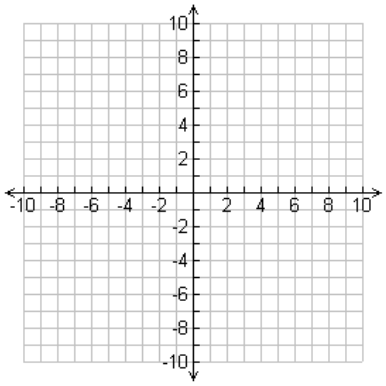
Domain: _____
Range: _____
Max/Min: _____
x-intercept(s): _____
y-intercept: _____
Increasing: _____
Decreasing: _____
Positive: _____
Negative: _____

4) $y = -\frac{1}{2}\sqrt[3]{x+1}$



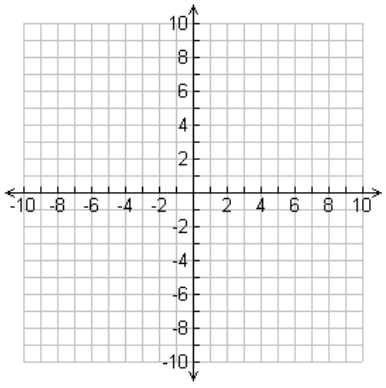
Domain: _____
Range: _____
Max/Min: _____
x-intercept(s): _____
y-intercept: _____
Increasing: _____
Decreasing: _____
Positive: _____
Negative: _____

5) $y = 3\sqrt[3]{x} - 2$



Domain: _____
Range: _____
Max/Min: _____
x-intercept(s): _____
y-intercept: _____
Increasing: _____
Decreasing: _____
Positive: _____
Negative: _____

6) $y = \sqrt[3]{x-3} + 1$



Domain: _____
Range: _____
Max/Min: _____
x-intercept(s): _____
y-intercept: _____
Increasing: _____
Decreasing: _____
Positive: _____
Negative: _____

Solve each equation for x over the set of real numbers.

7) $\sqrt{x} = 7$

8) $\sqrt{x} = -2$

9) $\sqrt{x} = \frac{1}{2}$

10) $\sqrt{7x} = 21$

11) $\sqrt{20x} = -10$

12) $15\sqrt{x} = 30$

13) $\sqrt{x^2 + 45} = x + 5$

14) $\sqrt{2x - 1} = 11$

15) $\sqrt{5x - 1} - \sqrt{x + 3} = 0$

16) $x + 7 = \sqrt{13 - x}$

17) $\sqrt{8x - 3} = \sqrt{3x + 7}$

18) $\sqrt[3]{x} - 5 = 2$

19) $\sqrt[3]{x - 5} = 4$

20) $\sqrt[4]{x + 6} = 1$

21) $2\sqrt[4]{x} = 6$

22) $5\sqrt[3]{x+2} + 1 = -24$

23) $25\sqrt[6]{x-2} = 75$

24) $x^{2/3} + 3 = 39$

25) $5x^{2/5} - 1 = 44$

26) $x^{3/2} = -8$

27) $(x+1)^{4/5} = 16$

28) $(12x+8)^{3/7} = 8$

Find the composition of each function.

29) If $f(x) = -4x + 9$ and $g(x) = 2x - 7$, find $(f \circ g)(x)$

30) If $f(x) = -4x + 9$ and $g(x) = 2x - 7$, find $(g \circ f)(x)$

31) If $h(x) = 3x - 5$ and $k(x) = 2x^2 - 7x$, find $(h \circ k)(x)$

32) If $h(x) = 3x - 5$ and $k(x) = 2x^2 - 7x$, find $(k \circ h)(x)$

33) Find $(h \circ k)(3)$

34) Find $(k \circ h)(-3)$

If $f(x) = \{(-2,-4),(-1,-2),(0,0),(1,2)\}$ and $g(x) = \{(-4,-11),(-2,-5),(0,1),(2,7)\}$

35) Find $(g \circ f)(-2)$

36) Find $(f \circ g)(0)$

For problems 35-36, a) Tell if the relation is a function, b) If it is a function, tell if it is one-to-one, c) Find the inverse of the relation, and d) Tell if the inverse is a function.

37) $\{(6,5),(-3,2),(0,3)\}$

a)	Function?
b)	One-to-one?
c)	Inverse:
d)	Inverse Function?

38) $\{(3,1),(-7,-6),(0,5),(8,-6\}$

a)	Function?
b)	One-to-one?
c)	Inverse:
d)	Inverse Function?

Find the inverse of each function (restrict the domain as necessary).

39) $y = \frac{2}{3}x - 6$

40) $f(x) = x^2 - 3$

41) $g(x) = (x-2)^2 + 1$

42) $g(x) = 2\sqrt{x+1} - 4$