

**Sec 4.1 – Rational & Radical Relationships**  
**Graphs of Radical Functions**

Name: \_\_\_\_\_

Consider the following EQUATIONS, make a table, plot the points, and graph what you think the graph looks like.

1.  $f(x) = \sqrt{x}$

x	y
-4	
-1	
0	
1	
2	
3	
4	

2.  $f(x) = 2\sqrt{x}$

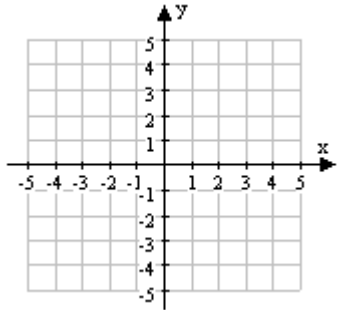
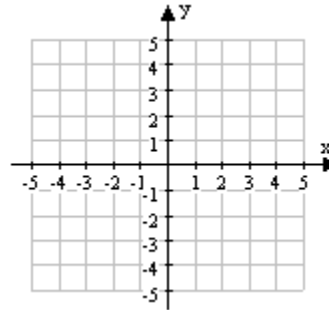
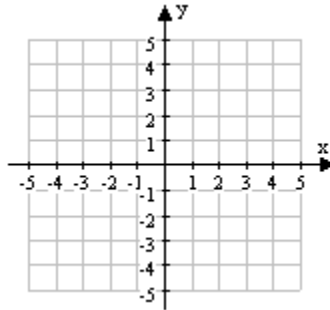
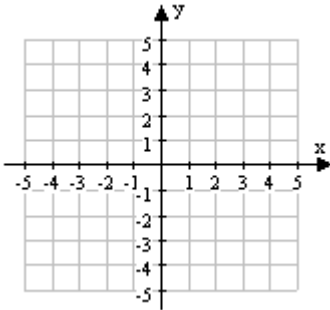
x	y
-4	
-1	
0	
1	
2	
3	
4	

3.  $f(x) = 0.5\sqrt{x}$

x	y
-4	
-1	
0	
1	
2	
3	
4	

4.  $f(x) = -2\sqrt{x}$

x	y
-4	
-1	
0	
1	
2	
3	
4	



5. What happens to the graph as the number in front of  $\sqrt{x}$  gets Larger? Close to Zero? Negative? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

6.  $f(x) = \sqrt{-x}$

x	y
-4	
-3	
-2	
-1	
0	
1	
4	

7.  $f(x) = \sqrt{x+4}$

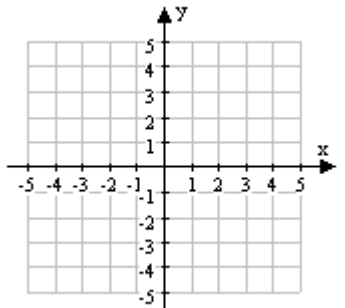
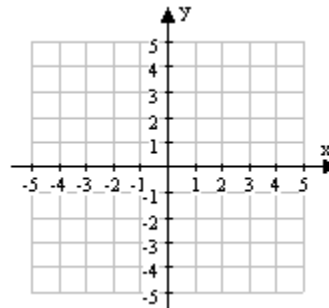
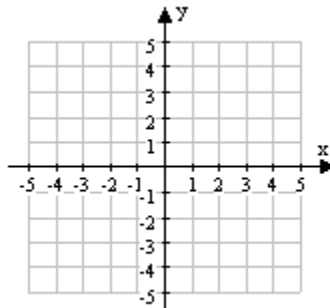
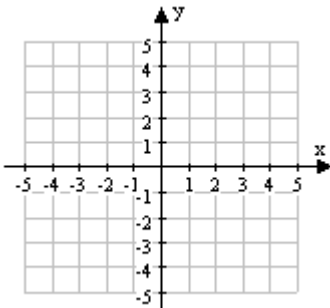
x	y
-5	
-4	
-3	
-2	
0	
3	
5	

8.  $f(x) = \sqrt{x-1}$

x	y
-3	
0	
1	
2	
3	
4	
5	

9.  $f(x) = \sqrt{x+4} + 3$

x	y
-5	
-4	
-3	
-2	
0	
3	
5	



10. What happens to the graph as we add or subtract a number inside or outside the radical? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Consider the following EQUATIONS, make a table, plot the points, and graph what you think the graph looks like.

11.  $f(x) = \sqrt[3]{x}$

x	y
-8	
-4	
-1	
0	
1	
4	
8	

12.  $f(x) = 3\sqrt[3]{x}$

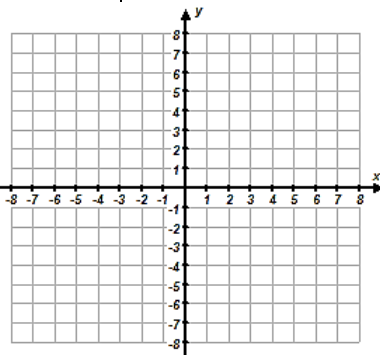
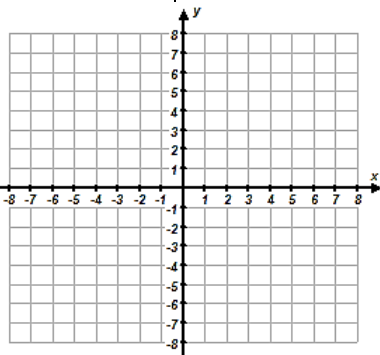
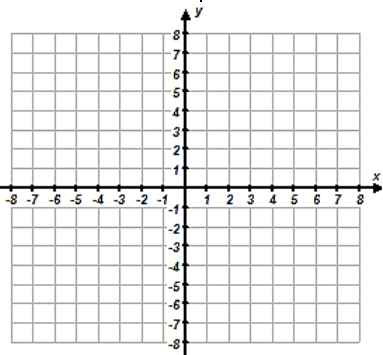
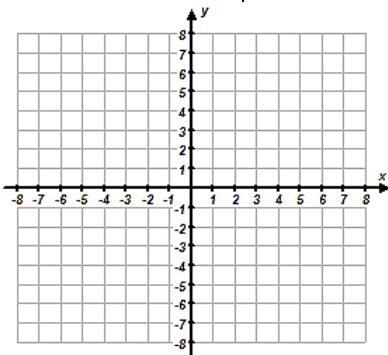
x	y
-8	
-4	
-1	
0	
1	
4	
8	

13.  $f(x) = \sqrt[3]{x+3}$

x	y
-8	
-4	
-3	
-2	
1	
5	
8	

14.  $f(x) = \sqrt[3]{x+3} + 4$

x	y
-8	
-4	
-3	
-2	
1	
5	
8	



15. Sketch a graph of  $f(x) = 2\sqrt{x+3} - 4$  and answer the following questions.

a. Explain the transformations of the parent function

$p(x) = \sqrt{x}$  to create  $f(x)$ .

\_\_\_\_\_

\_\_\_\_\_

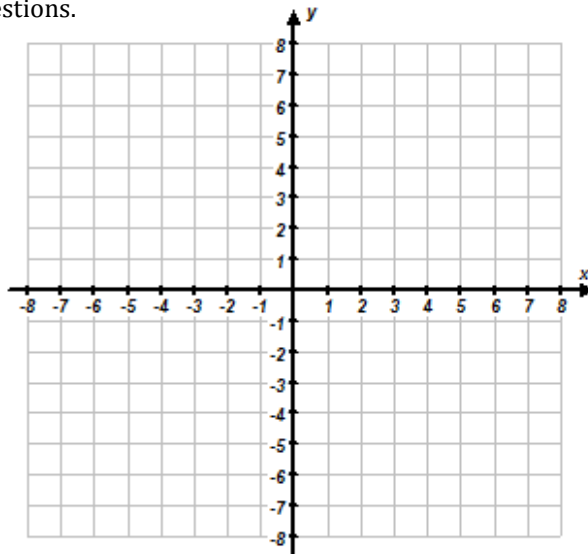
b. Domain of  $f(x)$ : \_\_\_\_\_

c. Range of  $f(x)$ : \_\_\_\_\_

d. End Behavior of  $f(x)$ : \_\_\_\_\_

\_\_\_\_\_

e. Extrema: \_\_\_\_\_



16. Sketch a graph of  $g(x) = -3\sqrt[3]{x+4} + 2$  and answer the following questions.

a. Explain the transformations of the parent function

$p(x) = \sqrt[3]{x}$  to create  $g(x)$ .

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

b. Domain of  $f(x)$ : \_\_\_\_\_

c. Range of  $f(x)$ : \_\_\_\_\_

d. End Behavior of  $f(x)$ : \_\_\_\_\_

\_\_\_\_\_

