

# NOTES: RADICAL AND INVERSE FUNCTIONS

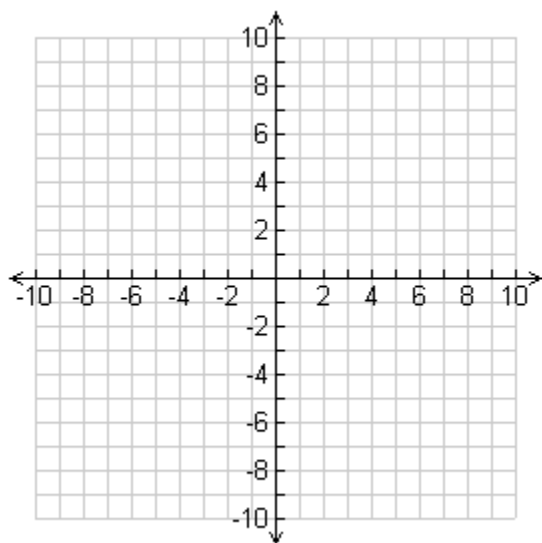
DAY 5

Textbook Chapter 6.4

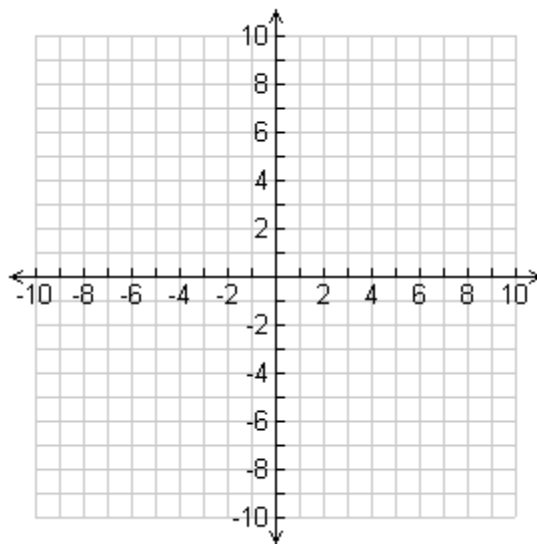
**OBJECTIVE:** Today you will learn about inverse functions!

**Graph both functions. What is their relationship?**

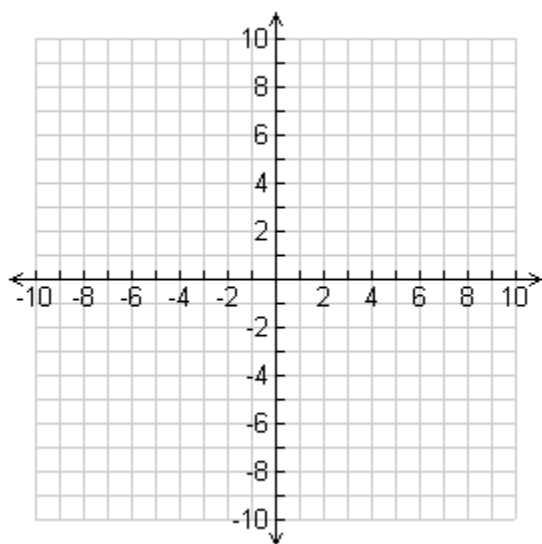
1.  $f(x) = x^2,$                        $g(x) = \sqrt{x}$



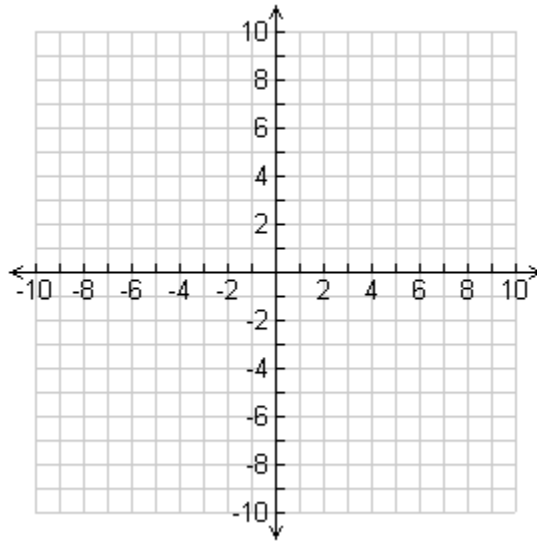
2.  $f(x) = 2x^2 - 3$                        $g(x) = \frac{1}{2}\sqrt{x+3}$



3.  $y = \sqrt{x-1} + 4$



4.  $y = 2\sqrt{x+5}$



### Find the Vertex Practice: (all types)

5.  $y = \sqrt{x-4} + 8$  Vertex: (     ,     )

6.  $y = -\sqrt{x}$  Vertex: (     ,     )

7.  $y = -|x-1|$  Vertex: (     ,     )

8.  $y = \sqrt{x} - 7$  Vertex: (     ,     )

9.  $y = \frac{1}{3}(x+10)^2$  Vertex: (     ,     )

10.  $y = 3\sqrt{x+1}$  Vertex: (     ,     )

Find the inverse function.

1. $y = 3x - 3$	2. $f(x) = x^2$
3. $y = -\frac{4}{5}x + 11$	4. $f(x) = \frac{1}{2}x^3 - 2$

Verify that the functions are inverses:  $f(x) = 4x^2 + 8$

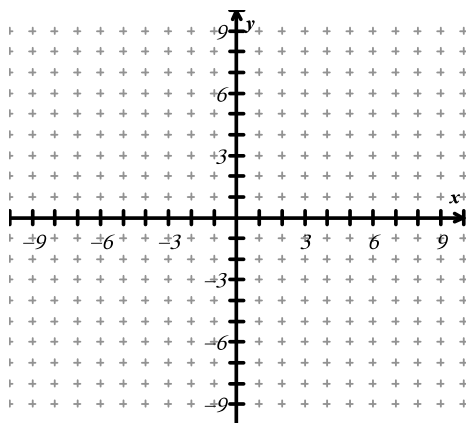
$$g(x) = \frac{1}{4}\sqrt{x-8}$$

# Graphing the Radical Functions

# DAY 5

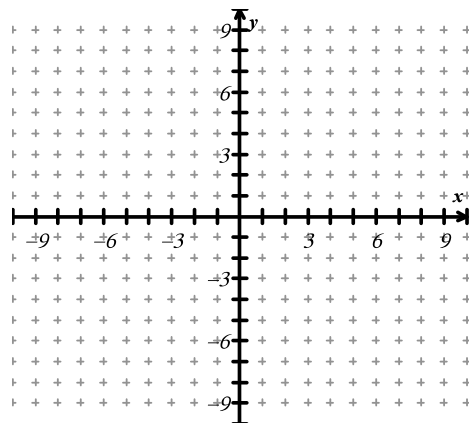
1)  $y = 2\sqrt{x}$  Initial Point: ( , )

Chart



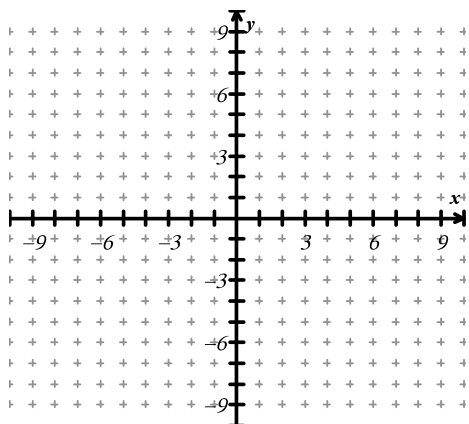
2)  $y = \frac{1}{3}\sqrt{x}$  Initial Point: ( , )

Chart



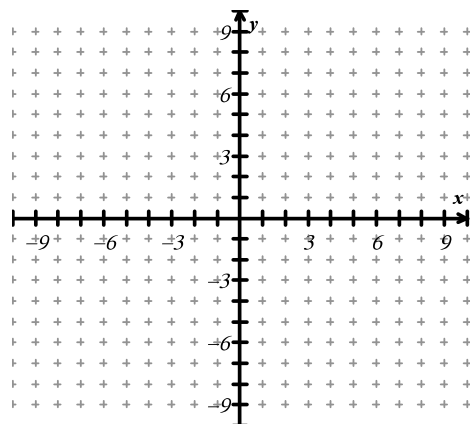
3)  $y = -2\sqrt{x-3}$  Initial Point: ( , )

Chart



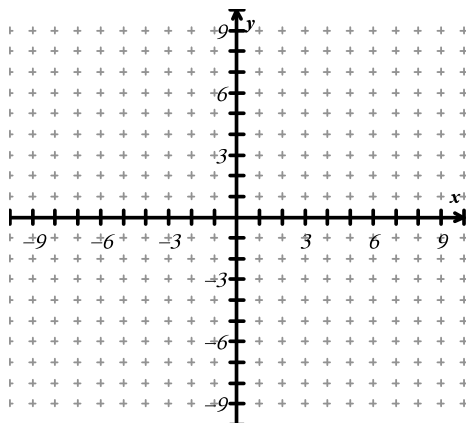
4)  $y = -\sqrt{x+2} + 8$  Initial Point: ( , )

Chart



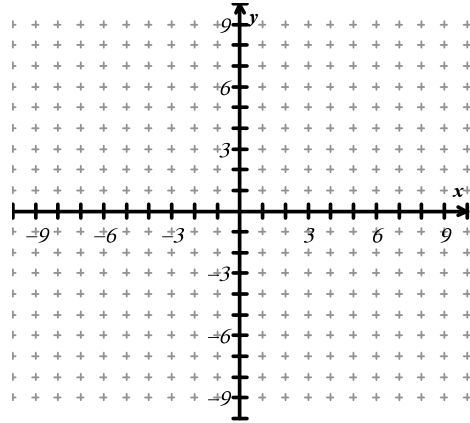
5)  $r(x) = -\sqrt{x} + 4$  Initial Pt: ( , )

Chart



6)  $y = -\frac{1}{2}\sqrt{x+2} + 8$  Initial Pt: ( , )

Chart



**Find the inverses.**

7.  $y = 3x + 5$

8.  $y = 2x^2 - 10$

9.  $y = 2\sqrt{3x-1} + 4$

10.  $y = 4x^3 - 10$

**Verify that the functions are inverses.**

11.  $f(x) = \frac{5x-3}{2}$        $g(x) = \frac{2x+3}{5}$

12.  $f(x) = 2x^2 - 3$        $g(x) = \sqrt{\frac{x+3}{2}}$