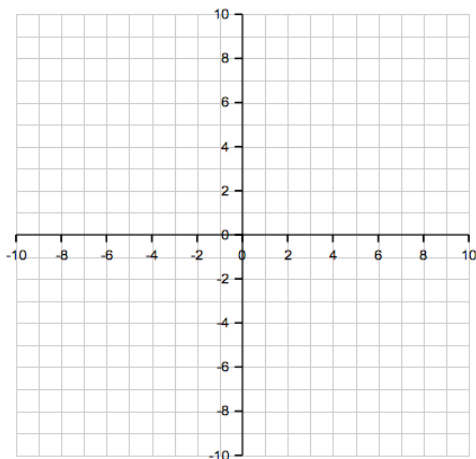
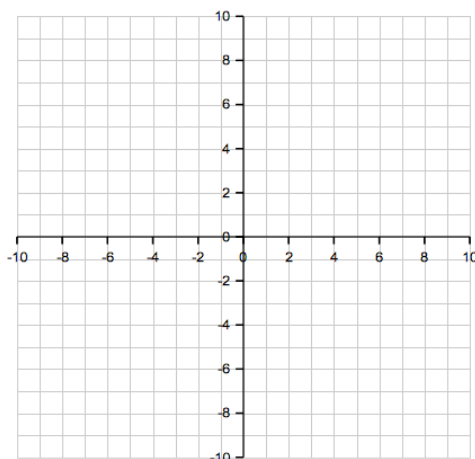


The Square Root Function

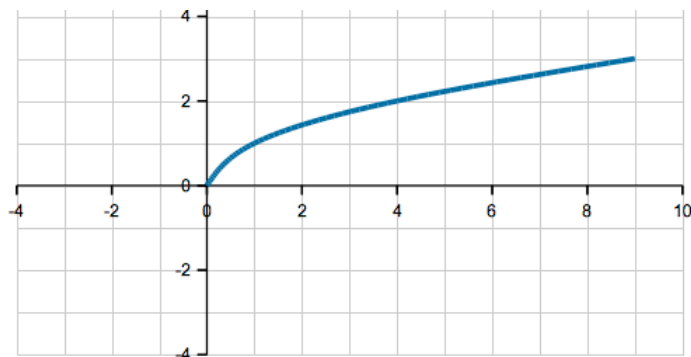
We have the parabola... $y = x^2$



And the *inverse* of the parabola... $y = \sqrt{x}$



Key features of the function $y = \sqrt{x}$:

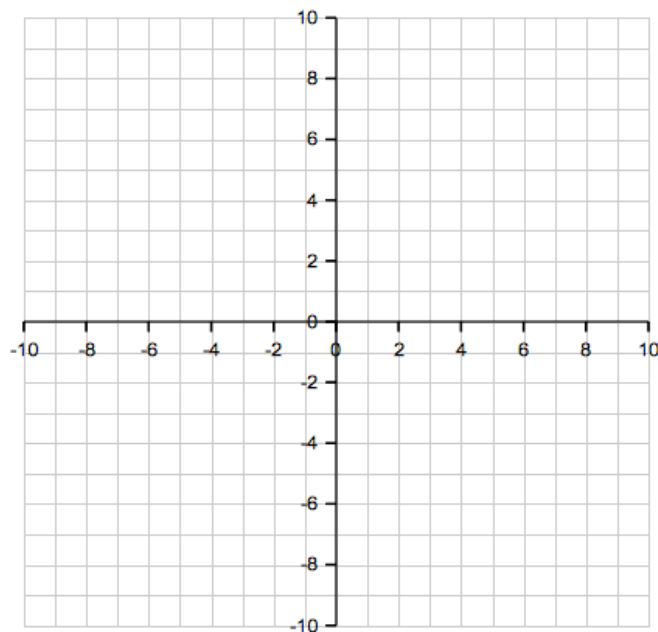


How to graph square root functions:

- Plot the “vertex” of the function just like you would for a parabola
- Figure out how the step pattern will be stretched / flipped according to the equation
- Apply those steps and draw a line through your points

Example:

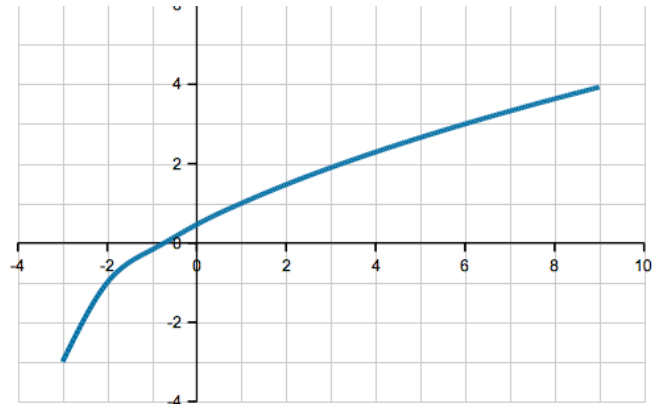
$$y = -3\sqrt{2(x+8)} + 3$$



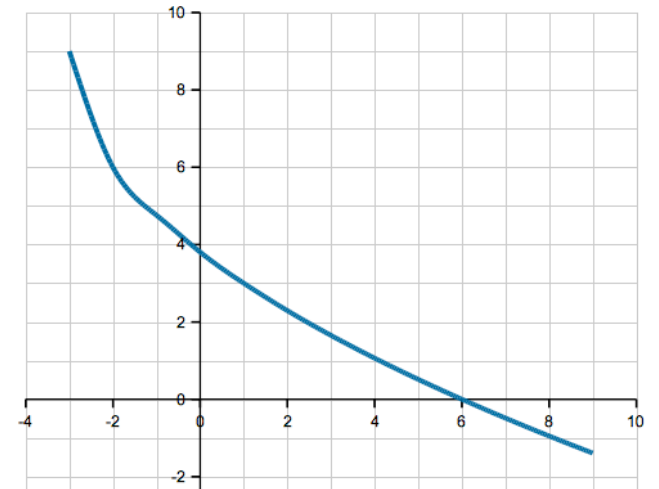
How to determine the equation of a square root function from a graph:

- Find the “vertex” of the function
- Figure out how the step pattern was stretched / flipped
- Figure out what numbers had to appear in the equation to cause those stretches and flips

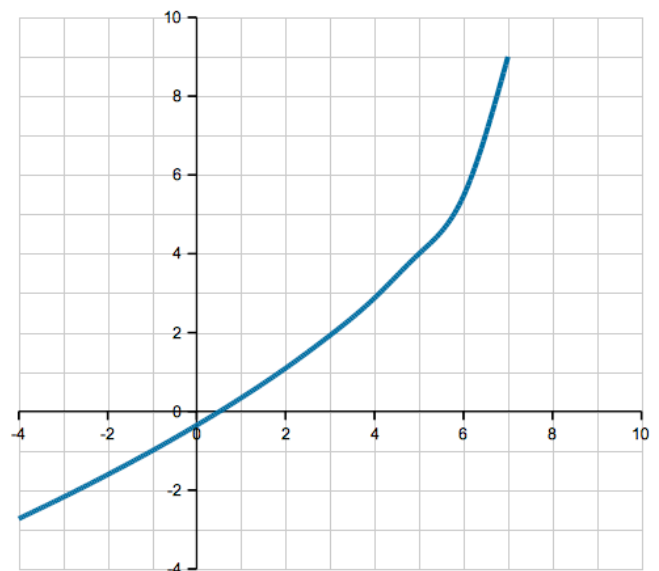
Example 1:



Example 2:



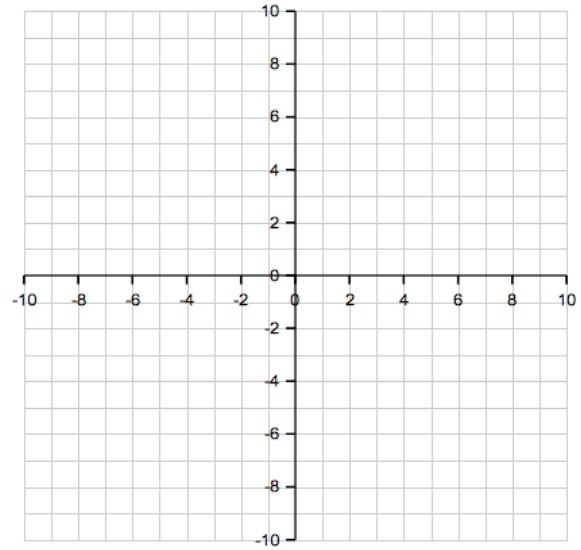
Example 3:



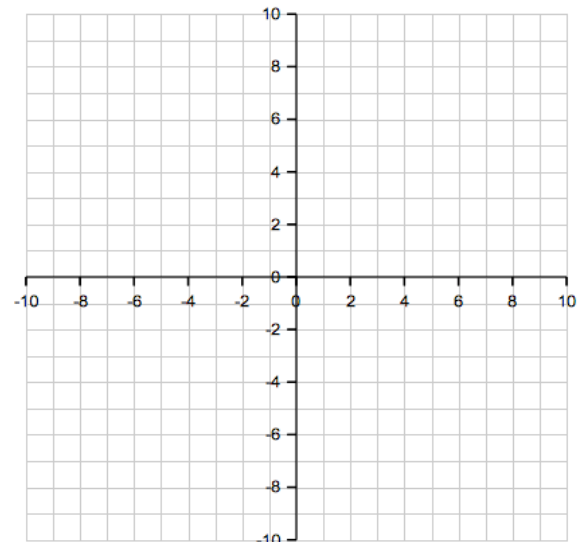
Homework

1. Plot the following functions on the grids provided (two graphs per grid).

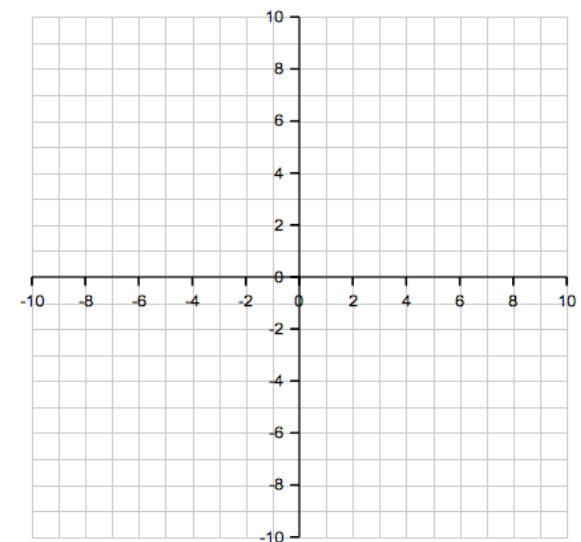
a) $y = \frac{1}{2}\sqrt{x+2} - 2$



b) $y = -\sqrt{2x} + 7$



c) $y = \sqrt{\frac{1}{2}(x+9)}$



d) $y = \sqrt{-(x-9)}$

e) $y = \sqrt{-x+7}$

f) $y = -3\sqrt{-2+20} + 9$

2. Determine the equation of each of the following square root functions:

