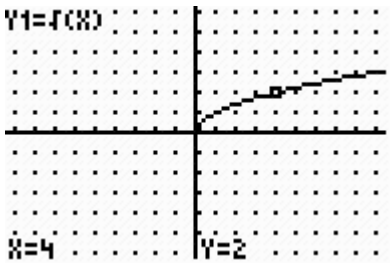
Graphing Square Root Functions

A function, $f(x)=\sqrt{u}$ where u is an expression in x, is called a square root function. To determine the domain of a square root function solve the inequality $u \geq 0$.

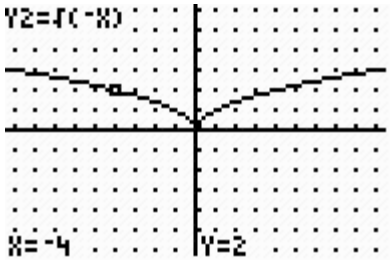
The parent square root function is $f(x)=\sqrt{x}$ with domain $[0,\infty)$.



Basic transformations of the parent function are shown below.

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

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



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

To graph, $f(x)=\sqrt{-4x+8}$, determine the domain and evaluate the function at a few values. Solve $-4x+8 \geq 0$ to find the domain, $x \leq 2$. The domain tells you that $x=2$ is a zero of the function. Plot a few other points

$f(0)=\sqrt{8} \approx 2.8$

$f(-2)=\sqrt{16}=4$.

You can also sketch the graph by considering $f(x)=\sqrt{-4x+8}=2\sqrt{-(x-2)}$ as a transformation of the parent function.