

7-5 Graphing Square Root Functions

To graph functions in the form $y = a\sqrt{x-h} + k$

1) square the equation and obtain a parabola equation in the form $x = a(y-k)^2 + h$

$v(h, k)$ $\begin{cases} \rightarrow a > 0 \\ \rightarrow a < 0 \end{cases}$

2) graph the appropriate half-parabola

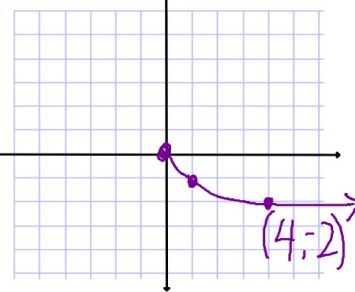
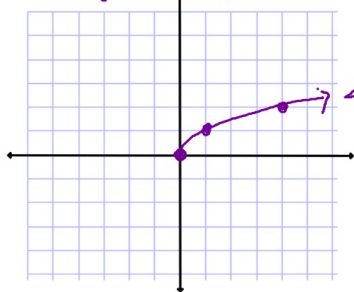
Ex 1

$$(y)^2 = (\sqrt{x})^2$$

$$y^2 = x$$

$$y = -\sqrt{x}$$

$$y^2 = x$$



Ex 2

$$y = \sqrt{x-3}$$

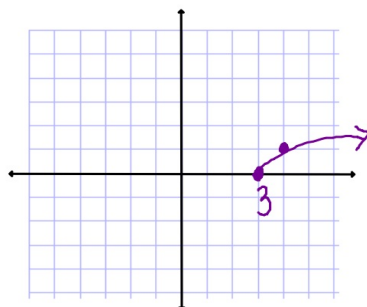
$$(y)^2 = (\sqrt{x-3})^2$$

$$y^2 = x-3$$

$$y^2 + 3 = x$$

$$(y-0)^2 + 3 = x$$

$$v(3,0)$$



x	y
3	0
4	1

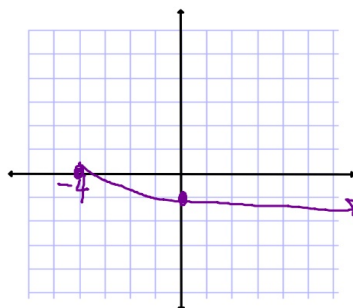
Ex 3

$$y = \frac{-1}{2}\sqrt{x+4}$$

$$y^2 = \frac{1}{4}(x+4)$$

$$4y^2 = x+4$$

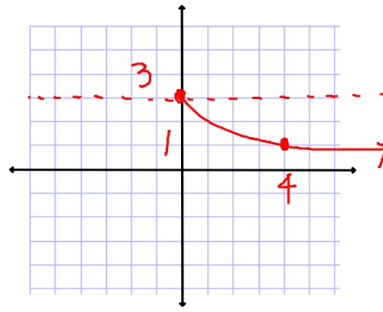
$$4(y-0)^2 - 4 = x$$



x	y
0	-1

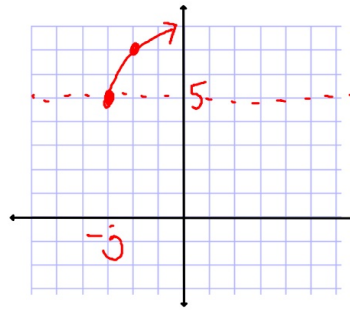
Ex 4 $y = -\sqrt{x+3}$
 $(y-3)^2 = (-\sqrt{x})^2$

$(y-3)^2 + 0 = x$



$$\begin{array}{r|l} x & y \\ \hline 0 & 3 \\ 4 & 1 \end{array}$$

Ex 5 $y = 2\sqrt{x+3} + 5$
 $(y-5)^2 = (2\sqrt{x+3})^2$
 $(y-5)^2 = 4(x+3)$
 $\frac{1}{4}(y-5)^2 - 3 = x$



$$\begin{array}{r|l} x & y \\ \hline -3 & 5 \\ -2 & 7 \end{array}$$