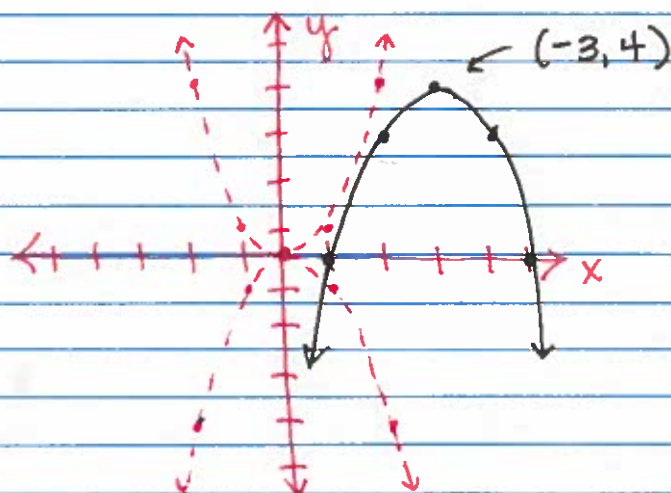


Section 8.8 Notes - Graphing Radical Functions

RECALL \rightarrow $y = -(x-3)^2 + 4$ Quadratic (Parabola)

$-(x-3)^2$ → Reflection over x-axis
 $(x-3)$ → translation left + 3
 $+4$ → translation up 4



Graphing Radical Functions

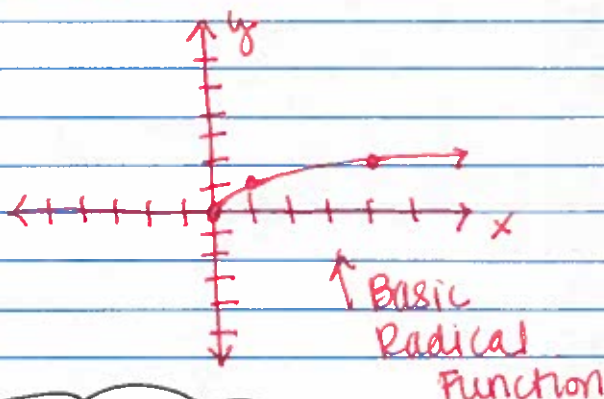
$y = \sqrt{x}$ ← Parent Function

Perfect sq.

x	y
0	0
1	1
4	2
9	3

D: $[0, \infty)$

R: $[0, \infty)$

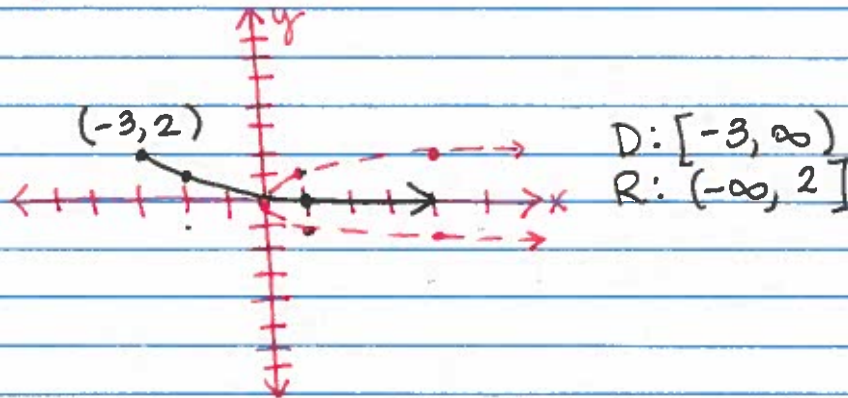


$y = -a\sqrt{-(x+h)} + k$ (w/out transformations)

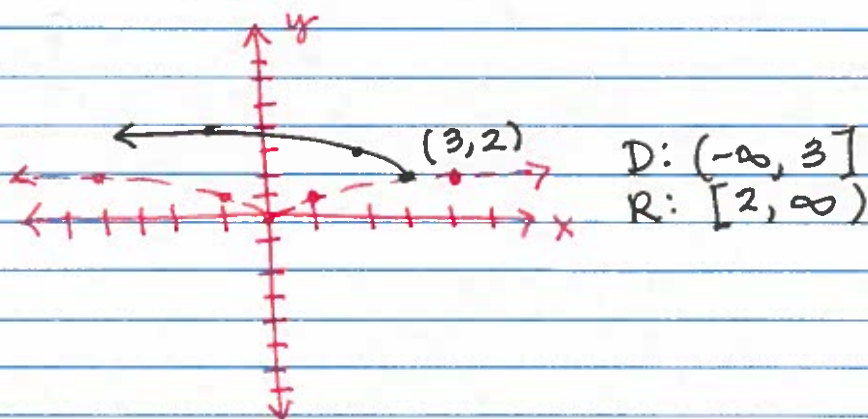
$-a$ → vertical stretch
 $-(x+h)$ → Reflect over y
 $-(x+h)$ → Horiz. Translation
 $+k$ → vertical translation
 $+k \rightarrow$ up
 $-k \rightarrow$ down
 $+h \rightarrow$ left
 $-h \rightarrow$ right
 $-\rightarrow$ Reflect over x

EX: Graph:

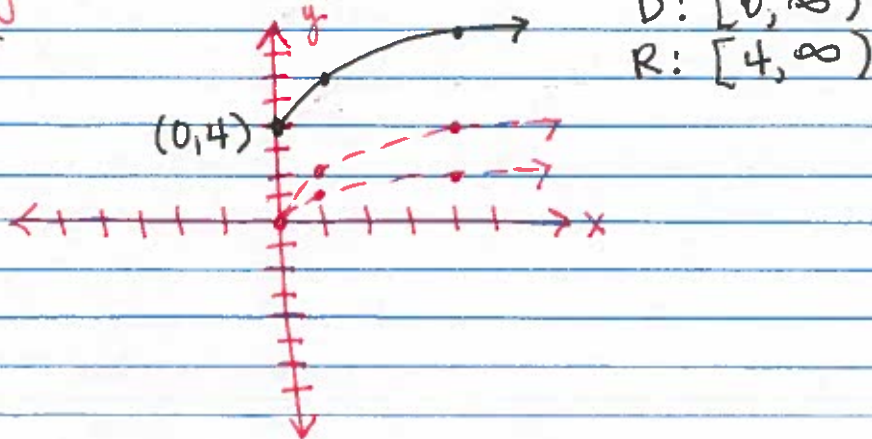
1) $y = -\sqrt{x+3} + 2$



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

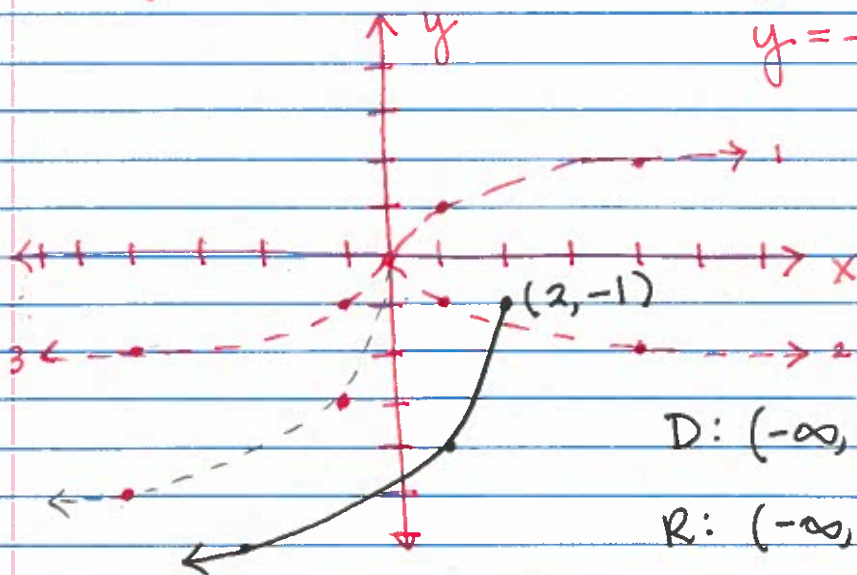


3) $y = 2\sqrt{x} + 4$



Order of reflections doesn't matter!

$$4) y = -3\sqrt{2-x} - 1 \rightarrow y = -3\sqrt{-x+2} - 1$$



$$D: (-\infty, 2]$$

$$R: (-\infty, -1]$$

Creating Radical Functions

- 1) Reflection over the y-axis, translation right 3 un, translation up 4 un.

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

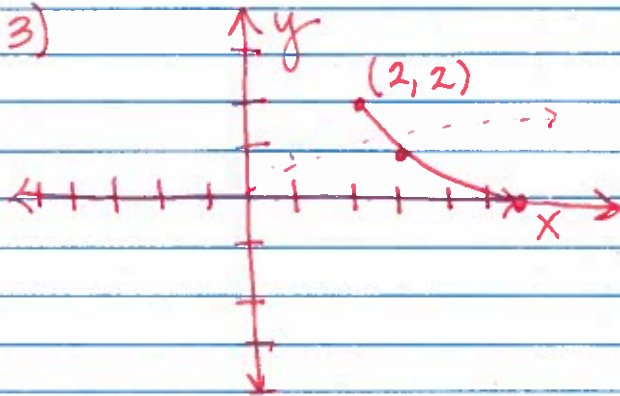
$$\text{OR } f(x) = \sqrt{-x+3} + 4$$

$$\star f(x) = \sqrt{3-x} + 4$$

- 2) Reflection over the x-axis, vert. stretch by factor of 2, and down 5 un.

$$f(x) = -2\sqrt{x} - 5$$

3)



EQ??

$$y = -\sqrt{x-2} + 2$$