

### Write the equation of this function

Starting point: (1,-6) means graph has shifted 1 right and 6 down.

$$a = \frac{\text{Measure on the Image}}{\text{Corresponding measure on the Parent}}$$

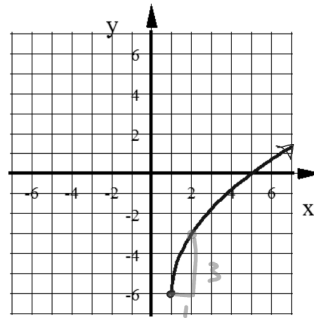
This Function:

$$\sqrt{\quad}^3$$

Parent Function:

$$\sqrt{\quad}^1$$

$$a = \frac{3}{1} = 3$$



$$y = 3\sqrt{x-1} - 6$$

### Write the equation of this function

Starting point: (-3,4) means graph has shifted 3 left and 4 up.

$$a = \frac{\text{Measure on the Image}}{\text{Corresponding measure on the Parent}}$$

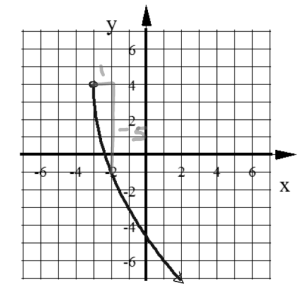
This Function:

$$\sqrt{\quad}^{-5}$$

Parent Function:

$$\sqrt{\quad}^1$$

$$a = \frac{-5}{1} = -5$$



$$y = -5\sqrt{x+3} + 4$$

### Write the equation of this function

Starting point: (-2,3) means graph has shifted 2 left and 3 up.

This graph is backwards so there is a negative inside the radical.

$$a = \frac{\text{Measure on the Image}}{\text{Corresponding measure on the Parent}}$$

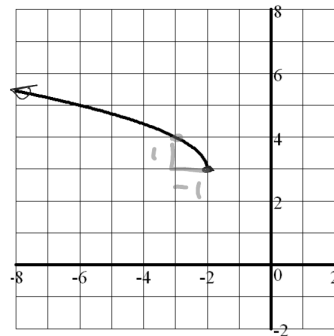
This Function:

$$\sqrt{\quad}^{-1}$$

Parent Function:

$$\sqrt{\quad}^1$$

$$a = \frac{-1}{1} = -1$$



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

### Write the equation of this function

Starting point: (5,2) means graph has shifted 5 right and 2 up.

This graph is backwards so there is a negative inside the radical.

$$a = \frac{\text{Measure on the Image}}{\text{Corresponding measure on the Parent}}$$

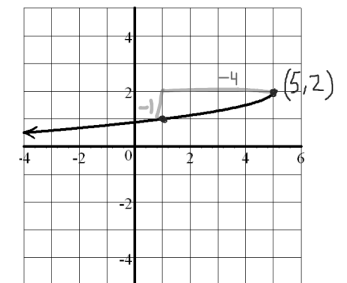
This Function:

$$\sqrt{\quad}^{-\frac{1}{2}}$$

Parent Function:

$$\sqrt{\quad}^2$$

$$a = \frac{-\frac{1}{2}}{2} = -\frac{1}{4}$$



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

### Write the equation of this function

Starting point:  $(-4,6)$  means graph has shifted 4 left and 6 up.

$$a = \frac{\text{Measure on the Image}}{\text{Corresponding measure on the Parent}}$$

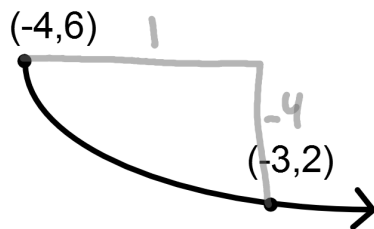
This Function:

$$\sqrt{\quad} - 4$$

Parent Function:

$$\sqrt{\quad} + 1$$

$$a = \frac{-4}{1} = -4$$



$$y = -4\sqrt{x+4} + 6$$

### Write the equation of this function

Starting point:  $(5,-1)$  means graph has shifted 5 right and 1 down.

$$a = \frac{\text{Measure on the Image}}{\text{Corresponding measure on the Parent}}$$

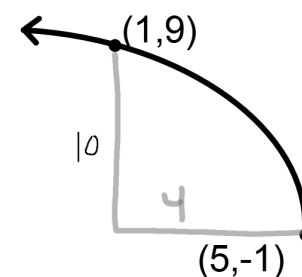
This Function:

$$\sqrt[10]{\quad} - 4$$

Parent Function:

$$\sqrt[4]{\quad} + 2$$

$$a = \frac{10}{2} = 5$$



$$y = 5\sqrt{-(x-5)} - 1$$

### Write the equation of this function

Starting point:  $(11,2)$  means graph has shifted 11 right and 2 up.

This graph is backwards so there is a negative inside the radical.

$$a = \frac{\text{Measure on the Image}}{\text{Corresponding measure on the Parent}}$$

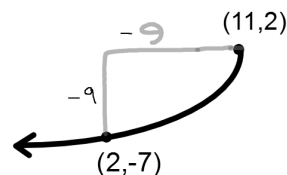
This Function:

$$\sqrt[9]{\quad} - 9$$

Parent Function:

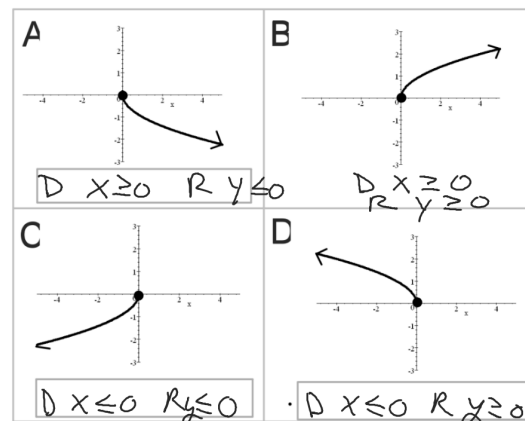
$$\sqrt[9]{\quad} + 3$$

$$a = \frac{-9}{3} = -3$$



$$y = -3\sqrt{-(x-11)} + 2$$

### Domain and Range of Square Root Functions:



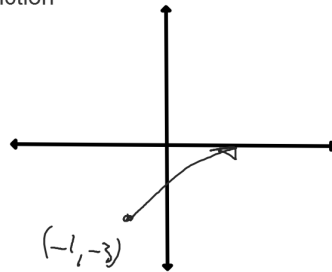
Find the Domain and Range of each.

1.  $y = 2\sqrt{x+1} - 3$  1 left and 3 down makes a starting point of  $(-1, -3)$

no negative means this graph moves in the same directions as the Parent Function

Domain:  $x \geq -1$

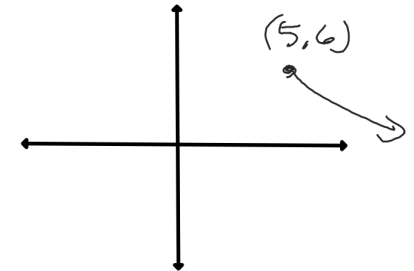
Range:  $y \geq -3$



2.  $y = -4\sqrt{x-5} + 6$  5 right and 6 up makes a starting point of  $(5, 6)$   
this negative makes the graph upside down.

Domain:  $x \geq 5$

Range:  $y \leq 6$

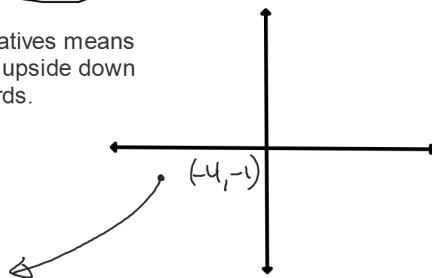


3.  $y = -\sqrt{-(x+4)} - 1$  4 left and -1 down makes a starting point of  $(-4, -1)$

The two negatives means this graph is upside down and backwards.

Domain:  $x \leq -4$

Range:  $y \leq -1$



Finding Domain and Range algebraically.

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

Domain:  $x+1 \geq 0$  radicand can't be negative. Therefore, to find the domain set the radicand  $\geq 0$  and solve for x.  
 $x \geq -1$

Range:  $y \geq -3$

x	y
-1	-3
0	-1

to find range find the starting point by plugging in the first value of x the domain indicates.

then plug another value for x according to what the domain indicates and see if y is getting bigger or smaller. -1 is bigger than -3.

2.  $y = -4\sqrt{x-5} + 6$

Domain:  $x-5 \geq 0$   
 $x \geq 5$

Range:  $y \leq 6$

X	Y
5	6
6	2

You can now do Hwk #22

Practice Sheet Sec 7-8

This is the end of Chapter 7!!