Alg 2: Sec 5-3 Graphs of Radical Functions   Spring 2020   Name:
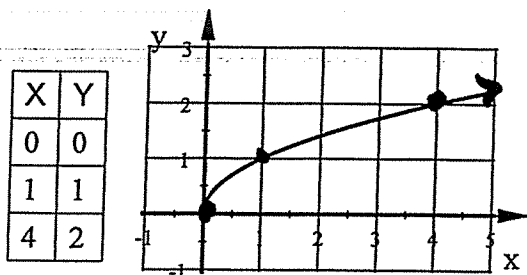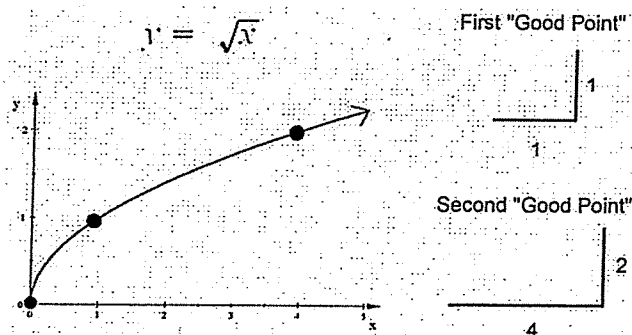
Below is the graph of the Parent Square Root Function: $y = \sqrt{x}$

X	Y
0	0
1	1
4	2

You should use x-values used in the table that create perfect squares under the radical so that the y-coordinate becomes a whole number.

Graph of the Parent Square Root Function:

$y = \sqrt{x}$

First "Good Point"

Second "Good Point"

Since the square root function is the inverse of the quadratic function, the points on the square root function can also be found by taking the points on the quadratic function starting with the origin and moving to the right, switching the x & y coordinates and replotting them.
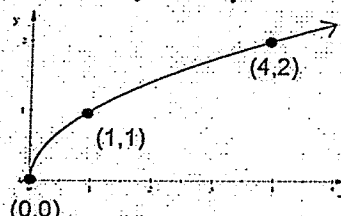
The parent quadratic:

$y = x^2$

(2,4)
(1,1)
(0,0)
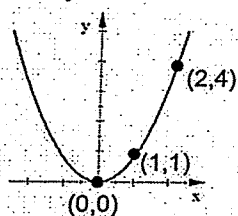
The parent sq root:

$y = \sqrt{x}$

(4,2)
(1,1)
(0,0)

Transformations of the Parent Quadratic function: $y = a(x - h)^2 + k$

$a \rightarrow$ Vertical Stretch/Shrink Factor - Pos means it looks just like the Parent Function
Neg means it's upside down

$x - h \rightarrow$ horizontal translation
$+k \rightarrow$ vertical translation   Vertex: (h, k)

Transformations of the Parent Square Root function: $y = a\sqrt{x - h} + k$

$a \rightarrow$ Vertical Stretch/Shrink Factor - Pos means it looks just like the Parent Function
Neg means it's upside down

$x - h \rightarrow$ horizontal translation
$+k \rightarrow$ vertical translation
Starting Point: (h, k)

The meaning of $a, h,$ & k remain the same, they're just applied to a different parent function.

1

To graph a transformed Square Root Function you be asked to plot three points, the Starting Point and the first two "good points" after that. To accomplish this you can do the following:

Method 1: Set up a Table and use the first three x-values that will create the first three perfect squares 0, 1, & 4 under the radical.
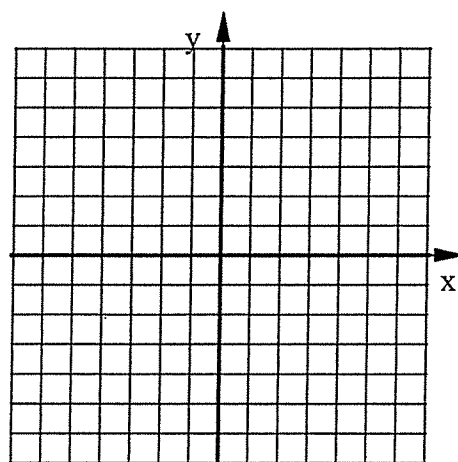
Method 2: Plot the Starting Point (h, k) then plot the first two "good points" by using the same x-distances as the Parent Function but the new y-distance created using the value of a (Vertical Stretch or Shrink Factor).

Graph each of the following using three points:
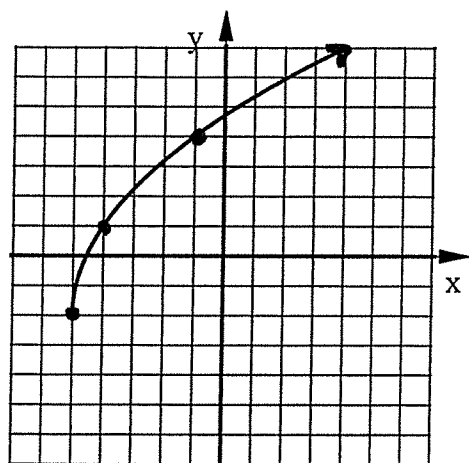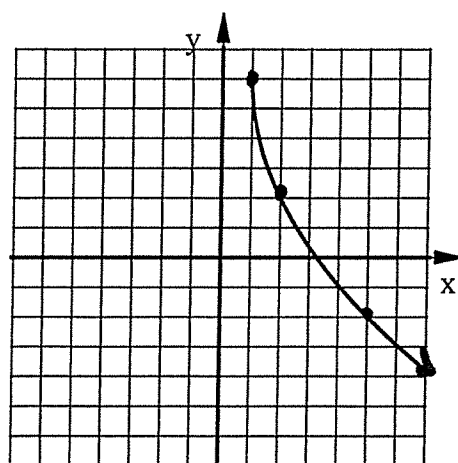
1. $y = 2\sqrt{x+4} + 3$
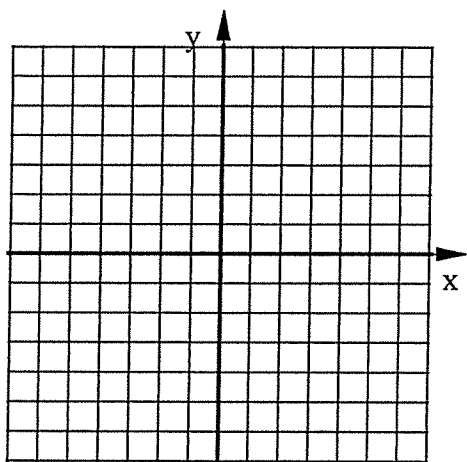
2. $y = 3\sqrt{x-2} - 7$

Write the equation of each square root function:

3.

4.

EQ:

EQ: