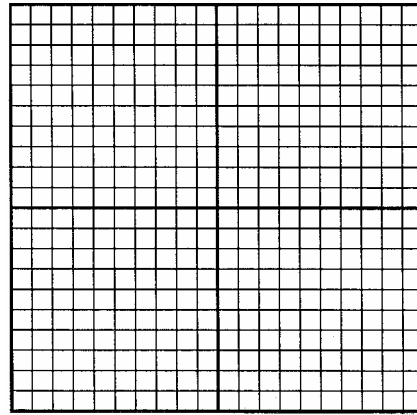


## 1.8.2 Mirror, Mirror!

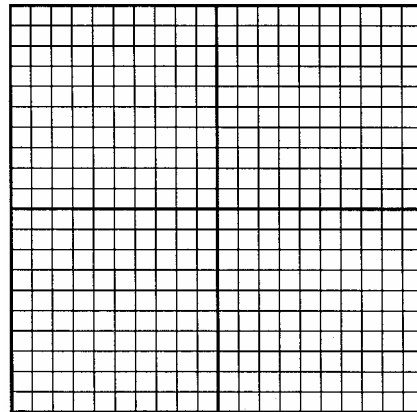
1. Using your calculator, graph the equation  $y = x^2$ . Use the table function to fill in the chart below. Use a square window for your graph (ZOOM  $\boxed{5}$ ). Plot the points to draw the graph on the grid.

X	Y
0	
1	
2	
3	
4	



2. Now graph the equation  $y = \sqrt{x}$ . Use the table function to fill in the chart below. Plot the points to draw the graph.

X	Y
	0
	1
	2
	3



3. Examine the table in #1 and #2. What do you notice about the numbers in the table?

4. Now graph  $y = x$  and the two equations from above. You should see all three graphs on the window at the same time. ( $y = x^2$ ,  $y = \sqrt{x}$ , and  $y = x$ )  
Go to the computer and use the TI graph link to print a copy of your screen.
5. Use a sheet of patty paper and neatly trace the x and y-axis and the three graphs. Now fold your patty paper along the  $y = x$  line. What do you notice about the two graphs. (Staple the patty paper to your work when you turn it in.)
6. Now graph  $y = x^2 + 2$ . Make a table like the one in # 1.

X	Y
0	
1	
2	
3	
4	

7. Take the numbers from your table and reverse the numbers to make a new table.

X	Y

8. Use your calculator with the numbers in the new table to make a scatter plot of the data. What do you think will be the equation of the curve that will fit this new data?

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11. Use guess and check to find an equation that will fit the curve.

Write your equation here. \_\_\_\_\_

12. Put this equation in the calculator and graph the three equations ( $y = x^2 + 2$ , your equation and  $y = x$ ). Print out a copy of your data. Trace the graphs on patty paper, fold along the  $y = x$  line. Describe the relationship between the first two graphs?
13. Does the second equation reflects the entire graph of the first equation? What other equation do you think we could use to get the rest of the graph to reflect?
14. Now make up a quadratic equation of your own and write equations that will reflect the graph over the  $y = x$  line. Print your graphs out and attach them to your work.

Show your equation and its inverse equations below.