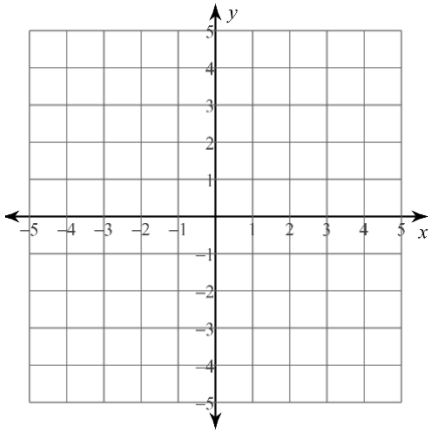# GRAPHING B: SQUARE ROOT AND CUBE ROOT FUNCTIONS

Use your graphing calculator to complete the following tasks:

Part I

Graph $y = \sqrt{x}$ on your calculator and sketch it here:

Now consider the following equations:

$$y = \sqrt{x} \qquad\qquad y = \sqrt{6x} \qquad\qquad y = \sqrt{x+1} \qquad\qquad y = \sqrt{x} - 2$$
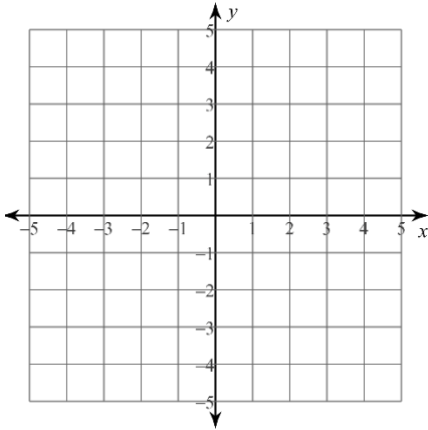
First, predict how the changes to the equation $y = \sqrt{x}$ will change the graph:

Second, graph the equations and explain the changes in each graph compared to the parent graph.

Third, explain how the graph of $y = \sqrt{x-3} + 2$ would compare to the parent graph.

Part II

Graph $y = \sqrt[3]{x}$ on your calculator and sketch it here:

Now consider the following equations:

$$y = \sqrt[3]{x} \qquad\qquad y = \sqrt[3]{8x} \qquad\qquad y = \sqrt[3]{x+3} \qquad\qquad y = \sqrt[3]{x} - 2$$

First, predict how the changes to the equation $y = \sqrt[3]{x}$ will change the graph:

Second, graph the equations and explain the changes in each graph compared to the parent graph.

Third, explain how the graph of $y = \sqrt[3]{x-3} + 2$ would compare to the parent graph.

Part III

Were there any similarities in transformations? Look back at your answers for Parts I and II and see if you can find any patterns. List any observations you make here:

Part IV

Get with another group and compare your answers for Part III. Do you all agree about the pattern for transformations? Be prepared to participate in our class discussion about these transformations.