

## Technology Activity: Graphs of Polynomial Functions

### Activity:

- Use a graphing calculator to graph each equation listed below.

$$y = x - 4$$

$$y = -x^3 - 4x$$

$$y = x^3$$

$$y = x^3 - 2x^2 - x - 4$$

$$y = x^3 - 2x^2 - x + 2$$

$$y = x^2$$

$$y = -x^3 + 3x - 2$$

$$y = x$$

$$y = x^2 - 3x + 3$$

$$y = -x^2 + 4x$$

- Sketch each graph on a separate index card or sheet of paper. Label the graph with its equation.
- Sort the graphs into groups based on their shapes.

### Discussion Questions:

1. One form of a Linear Equation is  $y = mx + b$ . How are the graphs of the linear equations alike?
2. One form of a Quadratic Equation is  $y = ax^2 + bx + c$ . How are the graphs of the quadratic equations alike?
3. How are the graphs of the remaining equations alike? How are they different?
4. Estimate the x-intercept(s) of each graph. Write them on each card.
5. **Make a Conjecture:** Compare the number of x-intercepts of each graph and the greatest exponent found in its equation. What is the relationship?