

## Exploration 1-2a: Names of Functions

Date: \_\_\_\_\_

**Objective:** Recall the names of certain types of functions.

1.  $f(x) = 2x + 3$  is the equation for a **linear function**. Plot the graph and sketch the result here. Give a reason for the name *linear*.

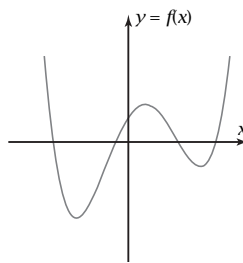
2.  $f(x) = x^2 - 6x + 10$  is the equation for a **quadratic function**. Plot the graph and sketch the result. Explain how the word *quadratic* is related to the word *quadrangle*.

3.  $f(x) = 3x^{0.7}$  is the equation for a **power function**. Plot the graph and sketch the result. Why do you think it is called a *power* function?

4.  $f(x) = 3 \cdot 0.7^x$  is the equation for an **exponential function**. Plot the graph and sketch the result. How does an exponential function differ from a power function algebraically? graphically?

5.  $f(x) = \frac{24}{x}$  is the equation for an **inverse variation** power function. Plot the graph for  $x > 0$  and sketch the result. Why do the words “ $y$  varies inversely with  $x$ ” make sense for this function? Why can the function be called a *power* function?

6.  $f(x) = x^4 - 4x^3 - 43x^2 + 130x + 168$  is the equation of this **quartic function**. Why do you think the name *quartic* is used for this function? Use your grapher to find the largest value of  $x$  at which the graph crosses the  $x$ -axis.



7.  $f(x) = \frac{x-4}{x-3}$  is the equation of a **rational function**. Plot the graph and sketch the result. Why do you think it is called a *rational* function? What happens to the graph at  $x = 3$ ?

8. What did you learn as a result of doing this Exploration that you did not know before?