

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*.

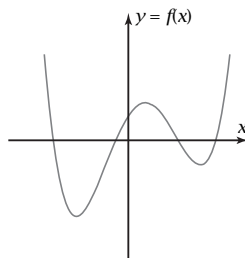
2. $f(x) = x^2 - 6x + 10$ is the equation for a **quadratic function**. Plot the graph and sketch the result. Explain how the word *quadratic* is related to the word *quadrangle*.

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?