Comparing Functions

Essential Questions

1. What different interpretations can be made from different representations of functions?
2. Why is comparing functions important?
3. How can you use characteristics of functions to compare functions?

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WORDS TO KNOW

exponential function — a function whose independent variable is in the exponent; the general form of its equation is $f(x) = ab^x + k$, where a is the initial value, b is the base, x is the input value, k is the vertical shift, and $f(x)$ is the output

factor — one of two or more numbers or expressions that are multiplied to produce a product

growth factor — the factor by which a quantity increases or decreases over time

interval — the continuous set of real numbers between two given numbers

linear function — a first-degree equation that can be written in the form $f(x) = mx + b$, in which m is the slope of the line and b is the y-intercept. The graph of a linear function is a straight line.

rate of change — a ratio that describes how much one quantity changes with respect to the change in another quantity; also known as the slope of a line

slope — the measure of the rate of change of one variable with respect to another variable;

$$\text{slope} = m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\Delta y}{\Delta x} = \frac{\text{rise}}{\text{run}}$$

***x*-intercept** — the x-coordinate of the point at which a line or a curve intersects the x-axis

***y*-intercept** — the y-coordinate of the point at which a line or a curve intersects the y-axis

Recommended Resources

- Algebra 4 All. "Exponential Functions."

  http://walch.com/rr/CAU3L5ExponentialFunctions

  This site provides links to several applets that allow users to explore exponential functions.

- Interactivate. "Graphit."

  http://walch.com/rr/CAU3L5Graphit

  This interactive applet allows users to compare functions using tables, graphs, and/or equations.