

Expectations

- 1.1 The student will represent functions and relations numerically, graphically, and algebraically.
- 1.2 The student will describe and apply properties of functions and relations.
- 1.3 The student will perform a variety of operations and geometrical transformations on functions and relations.
- 1.4 The student will use numerical, algebraic, and graphical representations of functions and relations in order to solve real-world problems.

Essential Questions

Why are relations and functions represented in multiple ways?

How are the properties of functions and functional operations useful?

Enduring Understandings

Relations and functions can be represented numerically, graphically, algebraically, and/or verbally.

The properties of functions and function operations are used to model and analyze real-world applications and quantitative relationships.

Indicators

- 1.1.PC.8 represent a piece-wise function numerically, algebraically, and graphically.
- 1.2.PC.3 describe the properties of linear, quadratic, power, polynomial, rational, exponential, logarithmic, trigonometric, and inverse trigonometric functions.
- 1.2.PC.4 describe the properties of a piece-wise function.
- 1.2.PC.6 identify and distinguish between the graphs of linear, quadratic, power, polynomial, rational, exponential, logarithmic, trigonometric, and inverse trigonometric functions.
- 1.3.PC.1 describe the effect of single or multiple transformations on the graph of $f(x)$, including $af(x)$, $f(x-h)$, $f(x)+k$, $f(ax)$, $|f(x)|$, and $f(|x|)$.
- 1.3.PC.5 describe the effect of transformations on a function with a restricted domain.**
- 1.4.PC.9 interpret and solve problems involving piece-wise functions.
- 1.4.PC.12 make predictions using trigonometric or power mathematical models given a set of data.