Unit 2b-Piecewise Functions

Content Area: **Math**
Course(s): **Algebra 1 ACC Honors**
Time Period: **Marking Period 2**
Length: **enVision Chapter 5, 10 Days**
Status: **Published**

Essential Questions

- How do you use piecewise-defined functions to model situations and solve problems?

Big Ideas

- Explore the key features of the absolute value graph such as the vertex and axis of symmetry and interpret domain and range
- Describe and graph piecewise defined functions over given intervals of the domain
- Use graphs and equations of the functions as well as the rate of change on a given interval to solve real-world problems
- Relate step functions to piecewise defined functions
- Use ceiling and floor functions to model and solve real-world problems
- Represent transformations of piecewise defined functions both algebraically and graphically

Technology Connection

8.1.8.DA.1 Organize and transform data collected using computational tools to make it usable for a specific purpose.

Enduring Understandings

Interpreting Functions

F.IF.A.3 [M] Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.

- Geometric Sequence

F.I.F.B.4 For a function that models a relationship between two quantities, interpret key features of graphs

and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.★

F.I.F.B.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.★

F.IF.C.7e Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

- Exponential Functions

F.IF.C.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).

- Comparing Functions

Mathematical Practices Focus

1. Make sense of problems and persevere in solving them. Pages

2. Reason abstractly and quantitatively. Pages 183, 191, 197

3. Construct viable arguments and critique the reasoning of others.

4. Model with mathematics. Pages 183, 190, 203

5. Use appropriate tools strategically.

6. Attend to precision. Pages 191, 197, 203

7. Look for and make use of structure. Pages 183, 191,197, 203

8. Look for and express regularity in repeated reasoning. Page 203