

Non-Linear Functions

Math 2, Unit 6

Anaheim Union High School District

Why are we studying this?

In this unit students will analyze graphs, tables and scenarios to be able to determine if a situation can be modeled with a linear function or if a non-linear function better represents the situation. Students will learn that the functions, which have graphs in which the points do not lie on a straight line, will be non-linear functions.

Careers in which data is modeled using non-linear functions include: scientists, engineers, accountants, market and survey researchers, pharmacists, nurses, loan officers, and many other professional careers.

Sample Real World Applications in this Unit

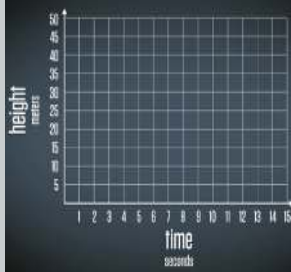
- Is the acceleration of an automobile linear or non-linear?
- As a cylindrical vase if filled with water, would the resulting function be linear or non-linear if we compared volume with height?

What if the vase was not cylindrical? What type of function would result?



A Note About Homework:

Homework in this unit spirals concepts from prior units, such as linear functions, to help students be successful in this unit.



Dear Student & Parent/Guardian,

This unit helps students to avoid the mistaken impression that all functional relationships are linear. In this unit students will work with examples of functions which are non-linear and compare and contrast them to linear functions.

Students will be able describe qualitatively the functional relationship between two quantities (e.g., where the function is increasing or decreasing, linear or nonlinear). They will be able to sketch graphs that illustrate the qualitative features of functions that are described by patterns, tables or real-world scenarios.

Students will further develop their understanding of non-linear functions in high school, studying function families that include exponential, quadratic, radical, and trigonometric functions.

-AUHSD Math Teachers

Math Topics Addressed in this Unit:

- Linear and Non-Linear Graphs
- Functions
- Rate of Change
- Constant, Increasing, and Decreasing Functions
- Interpreting Equations and Graphs

Sketch a graph that would model time versus height of a rope swing, starting from a platform on a tree.

