High School Algebra Playlist: Graphing Square Root, Cube Root, and Piecewise-defined Functions

Aligns with CCSS.Math.Content.HSF.IF.C.7.b: Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.

Related Standards

- CCSS.Math.Content.HSF.IF.A.1: Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.
- CCSS.Math.Content.HSF.IF.C.7: Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

Objectives

In this module, you will learn and practice the following skills:

- graph square root and cube root functions from their equations
- graph piecewise-defined functions from their equations
- graph step functions from their equations

Let's get started!

Key Terms

- A **square root function** is the inverse of a parabola; its basic form is $f(x)=\sqrt{x}$.
- A **cube root function** is the inverse of a cubic function; its basic form is $f(x)=\sqrt[3]{x}$.
- A **piecewise-defined function** has different function rules for different intervals.
- A **step function** has a graph resembling a staircase. It is a series of horizontal line segments.
- The **absolute-value function** has the basic form $f(x)=|x|$.

Connections

- https://openstaxcollege.org/textbooks/algebra-and-trigonometry; section 3.2