Linear vs. Nonlinear Functions

Today's Standard

8.F.A3 - Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function A = s^2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.

Real-World Applications for this Standard

Predicting costs in a budget; Determining speed in a distance-time graph; Understanding growth patterns in biology; Analyzing economic trends

Today I Learned

Today, we learned about linear functions. A linear function makes a straight line when you graph it. We also talked about functions that are not straight lines.

Common Stumbling Blocks

Sometimes, kids might think that all functions are straight lines, but that's not true. Another mistake is thinking that if a function goes through the point (0,0), it must be a straight line. We learned that some functions that go through (0,0) are not straight lines.

Quiz Me

- What is a linear function?
- How do you know if a graph is a straight line?
- Can you give an example of a function that is not a straight line?
- Why is it important to know the difference between straight and not straight lines?
- What happens if a function goes through (0,0)?

Help Me

A linear function is like a rule that makes a straight line when you draw it on graph paper. Not all rules make straight lines. Some make curves or other shapes. Knowing the difference helps us understand lots of things in the world, like how fast something is moving or how much something costs over time.