

Linear or Not?

8th Grade

Three tests, and what a non-linear relationship looks like.

LINEAR

- Constant rate of change
- Graph is a straight line
- Equation: $y = mx + b$
- Equal x steps give equal y steps
- x has power 1 only

NON-LINEAR

- Rate of change varies
- Graph curves
- $y = x^2$, $y = 2^x$, $y = 1/x$
- Equal x steps give different y steps
- x appears squared, or as an exponent

THE DIFFERENCE THAT MATTERS

Look at the differences in a table. If the y -differences are constant, it is linear. If those differences change, it is not.

Proportional is a subset of linear: it is linear AND passes through the origin.