

Graphing Linear Equations in Slope-Intercept Form

Name: _____ Date: _____

LEARNING OBJECTIVE

The student will graph linear equations written in slope-intercept form ($y = mx + b$) and interpret slope as steepness.

MATERIALS NEEDED

- graph paper
- ruler
- pencil
- colored pencils
- a book or small ramp (optional, for the stair demo)

HANDS-ON ACTIVITY

1. On graph paper, draw x- and y-axes. Plot the equation $y = 2x + 1$ by first marking the y-intercept (0, 1), then using the slope (2, or 2 up/1 right) to plot 2 more points, and connecting them with a ruler.
2. Build a physical 'staircase' next to your graph using a stack of books or blocks: for each step, measure and record the rise (height) and run (depth) with a ruler.
3. Calculate the slope of your physical staircase (rise $\div$ run) and compare it to the slope of 2 on your graphed line — are they similar or different?
4. Graph 2 more lines on the same grid using different colors: $y = -1x + 4$ and $y = 0.5x - 2$, labeling each with its equation.
5. Circle the y-intercept of each line on your graph and label its coordinates.

QUESTIONS

1. What are the slope and y-intercept of $y = 2x + 1$?
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2. What did you measure as the rise and run of your physical staircase, and what slope did you calculate?
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3. How does a negative slope (like in $y = -x + 4$) look different on a graph compared to a positive slope?

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4. Which of your 3 graphed lines is the steepest, and how do you know from the equation alone?
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