Graphing Linear Equations: Multiple-Choice Strategy

Original tasks 1, 2, 3 / complete keys

Task 1

A line crosses the y-axis at (0, -1) and passes through (3, 5). Which equation matches? A) y = 2x - 1 B) y = -2x - 1 C) y = 2x + 1 D) y = 0.5x - 1

Answer: A) y = 2x - 1

Reason: Intercept is -1, eliminating C. Slope = (5 - (-1))/(3 - 0) = 6/3 = 2, eliminating B and D. Only A has both intercept -1 and slope 2.

Check: Substitute (3, 5): 2(3) - 1 = 5, correct.

Task 2

An equation is 4x + 2y = 6. Which graph description matches? A) slope 2, y-intercept 3 B) slope -2, y-intercept 3 C) slope -2, y-intercept 6 D) slope 0.5, y-intercept 3

Answer: B) slope -2, y-intercept 3

Reason: Solve for y: 2y = -4x + 6, so y = -2x + 3. Slope is -2 and intercept is 3. A has wrong slope sign, C has wrong intercept, D has wrong slope magnitude.

Check: Substitute x = 0: y = 3. Substitute x = 1: y = 1. The line falls 2 for every 1 right.

Task 3

A line on a grid passes through (0, 4) and (4, 0). Which equation matches? A) y = x + 4 B) y = -x + 4 C) y = -x - 4 D) y = 4x + 4

Answer: B) y = -x + 4

Reason: Intercept is 4, eliminating C. Slope = (0 - 4)/(4 - 0) = -1, eliminating A and D. Only B has intercept 4 and slope -1.

Check: Substitute (4, 0): -4 + 4 = 0, correct.

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Original tasks 4 / complete keys

Task 4

Which equation describes a line with slope 3 and y-intercept -2? A) y = -2x + 3 B) y = 3x - 2 C) y = 3x + 2 D) y = -3x - 2

Answer: B) y = 3x - 2

Reason: Slope-intercept form is y = mx + b with m = 3 and b = -2, giving y = 3x - 2. A swaps slope and intercept, C has wrong intercept sign, D has wrong slope sign.

Check: At x = 0, y = -2. At x = 1, y = 1. The line rises 3 for every 1 right.

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Source rubric / reflection

- [ ] Identifies the y-intercept correctly from graph or equation.
- [ ] Computes slope as rise over run with correct sign.
- [ ] Eliminates distractors by naming the specific error.
- [ ] Confirms the final choice with a test point.
- [ ] Explains reasoning in complete sentences using correct terminology.

Reflection: What did you check, what did you change, and what will you try next?