Graphing Review Worksheet: Plotting, Slope, Intercepts, and Reading Lines

Original tasks 1, 2, 3 / complete keys

Task 1

Plot the points A(2, 3), B(-1, 4), and C(0, -2) on a coordinate plane. Describe where each point lies relative to the axes.

Answer: A is 2 right and 3 up from the origin, in the first quadrant. B is 1 left and 4 up, in the second quadrant. C is on the y-axis, 2 down from the origin.

Reason: For each ordered pair, move along x first, then along y. A has both coordinates positive; B has negative x and positive y; C has x = 0, so it lies on the y-axis.

Check: Verify that A is right and up, B is left and up, and C has no horizontal movement. Confirm each label matches its dot.

Task 2

A line on a grid passes through (-2, 1) and (2, 5). Find the slope and state whether the line rises or falls from left to right.

Answer: Slope = (5 - 1) / (2 - (-2)) = 4 / 4 = 1. The line rises from left to right.

Reason: Subtract y-values in the same order as x-values: 5 - 1 = 4 and 2 - (-2) = 4. The quotient is 1. A positive slope means the line rises.

Check: From (-2, 1), move up 4 and right 4 to reach (2, 5). The rise and run match the computed slope.

Task 3

A line has equation y = -3x + 6. Find the x-intercept and y-intercept as ordered pairs.

Answer: y-intercept: (0, 6). x-intercept: (2, 0).

Reason: Set x = 0: y = -3(0) + 6 = 6, giving (0, 6). Set y = 0: 0 = -3x + 6, so 3x = 6 and x = 2, giving (2, 0).

Check: Substitute each pair into the equation: (0, 6) gives 6 = 6; (2, 0) gives 0 = -6 + 6. Both are true.

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Original tasks 4 / complete keys

Task 4

A line graph shows distance in kilometers on the vertical axis and time in hours on the horizontal axis. Each grid square represents 1 hour horizontally and 5 kilometers vertically. The line passes through (0, 0) and (3, 15). What distance is shown at 4 hours, and what is the slope in kilometers per hour?

Answer: At 4 hours the distance is 20 kilometers. The slope is 15 / 3 = 5 kilometers per hour.

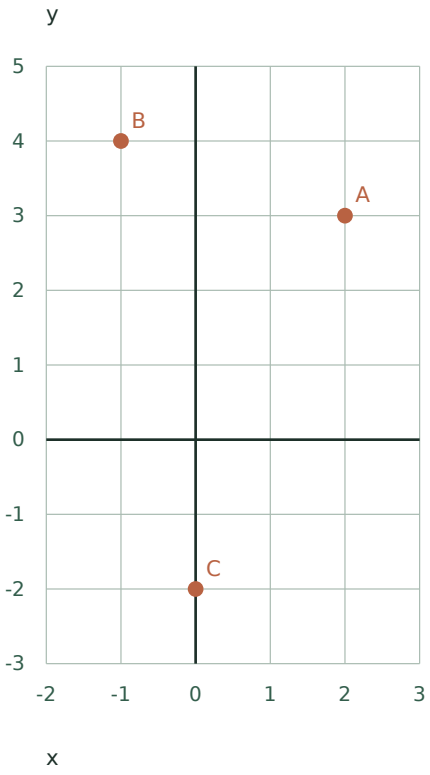
Reason: The line rises 15 kilometers over 3 hours, so the rate is 5 kilometers per hour. Extending the pattern, 4 hours corresponds to 4 × 5 = 20 kilometers. On the grid, 4 hours is 4 squares right and 20 kilometers is 4 squares up, so the point (4, 20) lies on the line.

Check: Confirm the scale: 4 squares up at 5 kilometers per square equals 20 kilometers. Check that 20 / 4 = 5, matching the slope.

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Task 1 / completed coordinate key

Plot the points A(2, 3), B(-1, 4), and C(0, -2) on a coordinate plane. Describe where each point lies relative to the axes.



Each horizontal interval = 1; each vertical interval = 1. The axes show a display window, not a newly imposed domain.

B = (-1, 4); C = (0, -2); A = (2, 3)

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Original rubric / reflection

- [ ] Plotting: each point is placed at the correct ordered pair and labeled clearly; accept any legible label that unambiguously matches the dot.
- [ ] Slope: rise and run are computed from two clear points with consistent subtraction order; fraction is simplified and sign matches the line's direction.
- [ ] Intercepts: both intercepts are given as ordered pairs and lie on the line.
- [ ] Graph reading: the correct axis and scale are used, and units are included when the graph provides them.
- [ ] Explanation: reasoning is shown in at least one sentence or a clear calculation for each item.

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