Linear Graphs Worksheet: Plotting from Tables, Intercepts, and Slope

Original tasks 1, 2, 3, 4 / complete keys

Task 1

Plot y = 3x - 2 using a table with x = -1, 0, 1, 2.

Answer: Points: (-1, -5), (0, -2), (1, 1), (2, 4). Draw a straight line through them.

Reason: Substitute each x: 3(-1)-2=-5; 3(0)-2=-2; 3(1)-2=1; 3(2)-2=4. The constant slope 3 confirms a line.

Check: Plot a third point such as x=3 giving y=7; it should lie on the same line.

Task 2

Plot 2x + 5y = 10 using x- and y-intercepts.

Answer: x-intercept: set y=0, 2x=10, x=5, point (5,0). y-intercept: set x=0, 5y=10, y=2, point (0,2). Draw the line through (5,0) and (0,2).

Reason: Intercepts give two points quickly. Slope is -2/5, consistent with moving down 2 for every 5 right.

Check: Substitute a third point, e.g. x=2.5 gives y=1; check it lies on the drawn line.

Task 3

Plot the line with slope 1/2 passing through (4, 1).

Answer: Plot (4,1). From there move up 1, right 2 to (6,2). Draw the line through (4,1) and (6,2).

Reason: Slope 1/2 means rise 1, run 2. Starting at (4,1), the next point is (6,2).

Check: Move down 1, left 2 from (4,1) to (2,0); verify (2,0) lies on the line.

Task 4

Plot y = -x + 3 using any method.

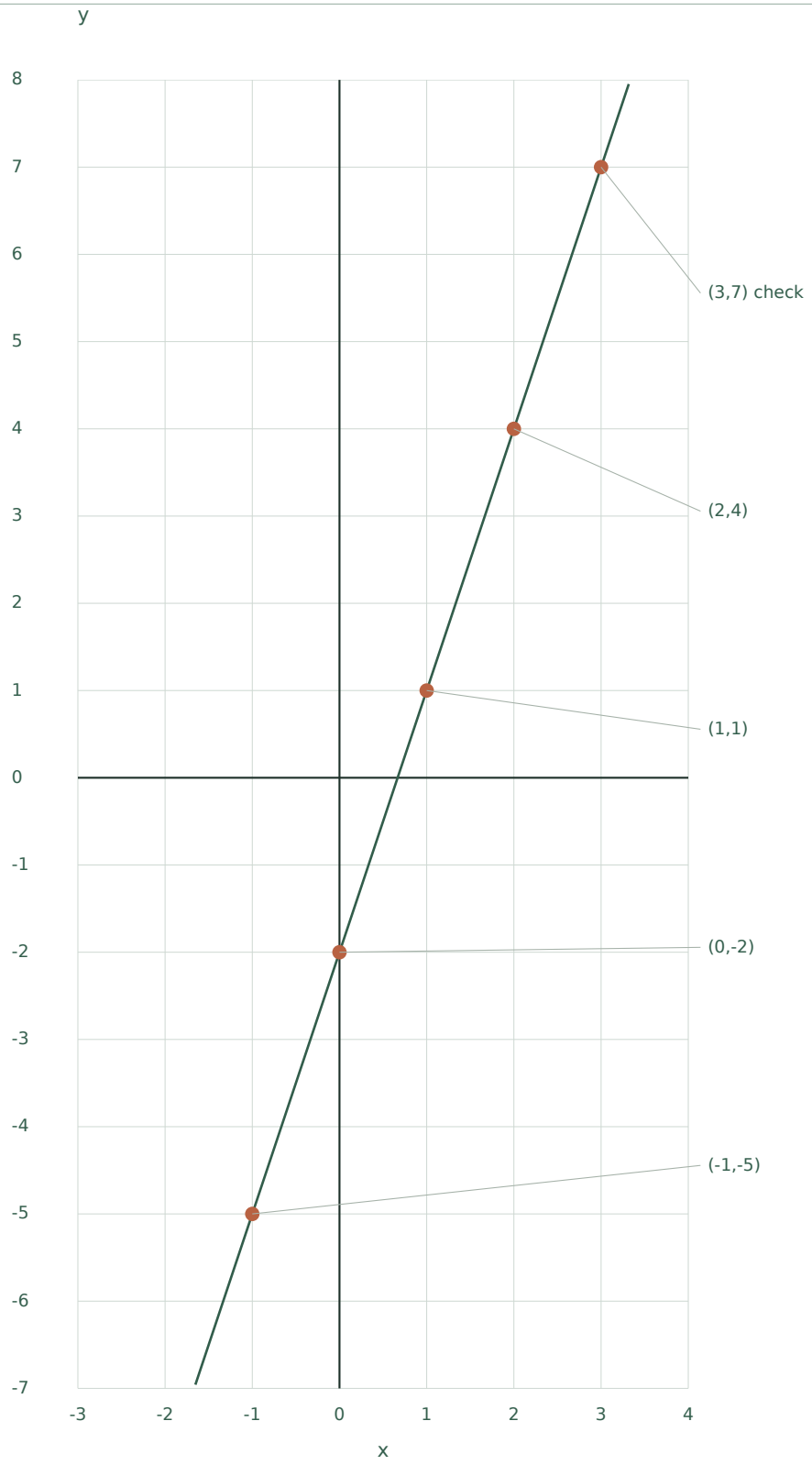
Answer: Using intercepts: y-intercept (0,3); x-intercept set y=0 gives x=3, point (3,0). Draw line through (0,3) and (3,0).

Reason: Slope is -1, so the line falls from left to right. Intercepts are easy integers.

Check: Check x=1 gives y=2; point (1,2) should lie on the line.

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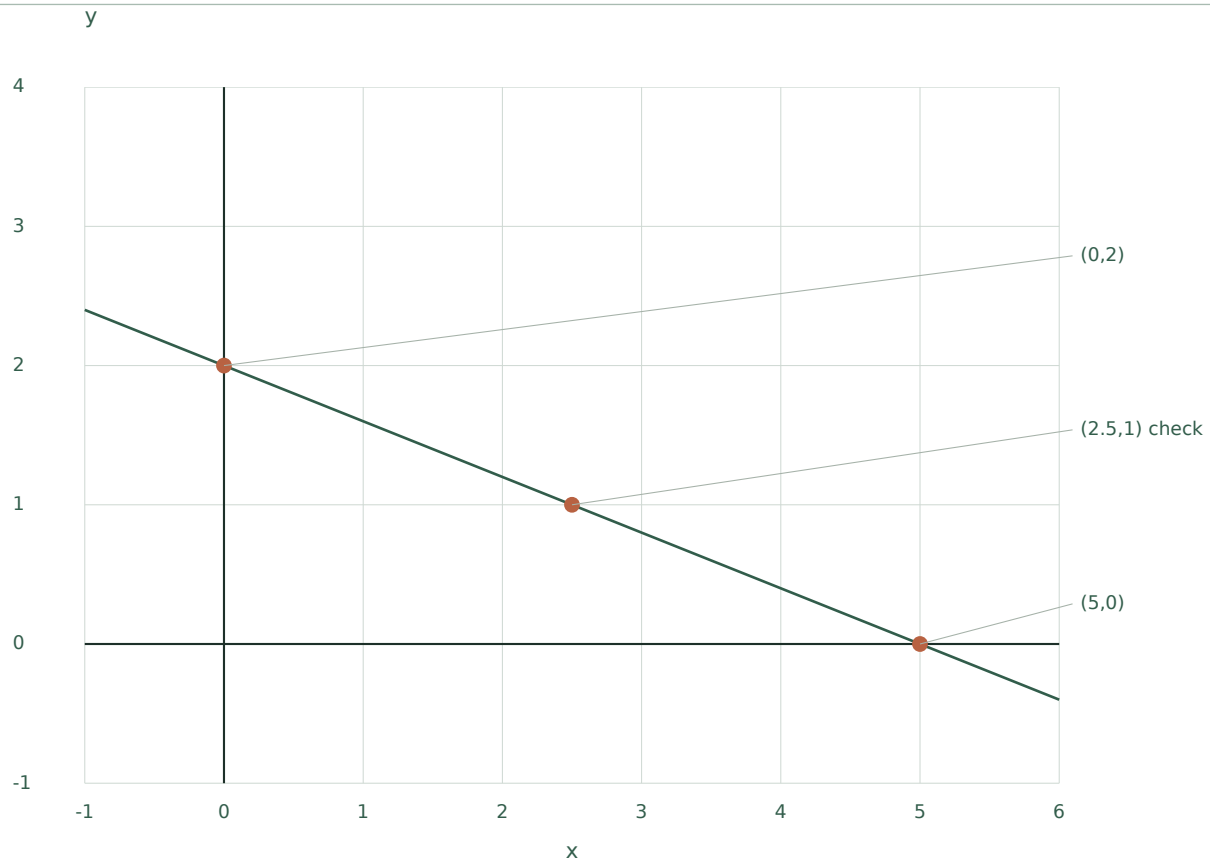
Task 1 answer: y = 3x - 2 through four table points



Answer plot with the four table points plus the x=3 check point. Coordinate labels sit outside the plot; thin grey leaders are annotations, not function curves.

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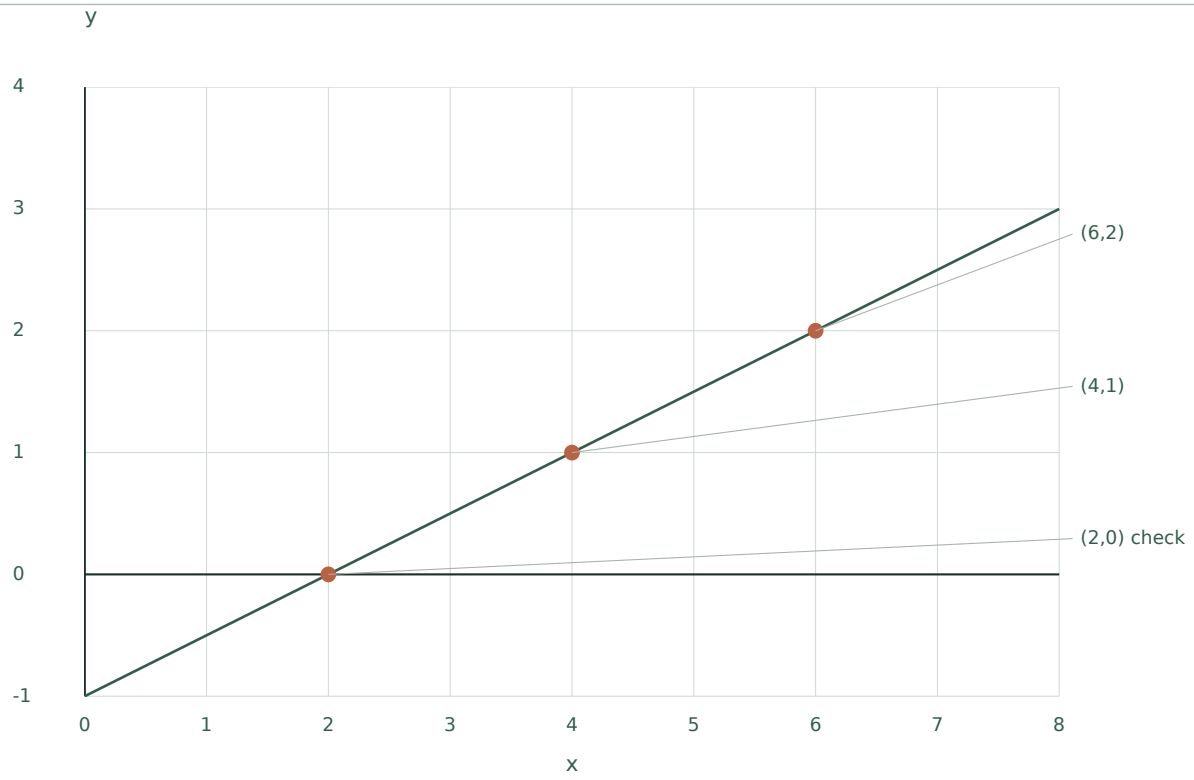
Task 2 answer: line through (5,0) and (0,2)



Answer plot with both intercepts and the x=2.5 check point. Coordinate labels sit outside the plot; thin grey leaders are annotations, not function curves.

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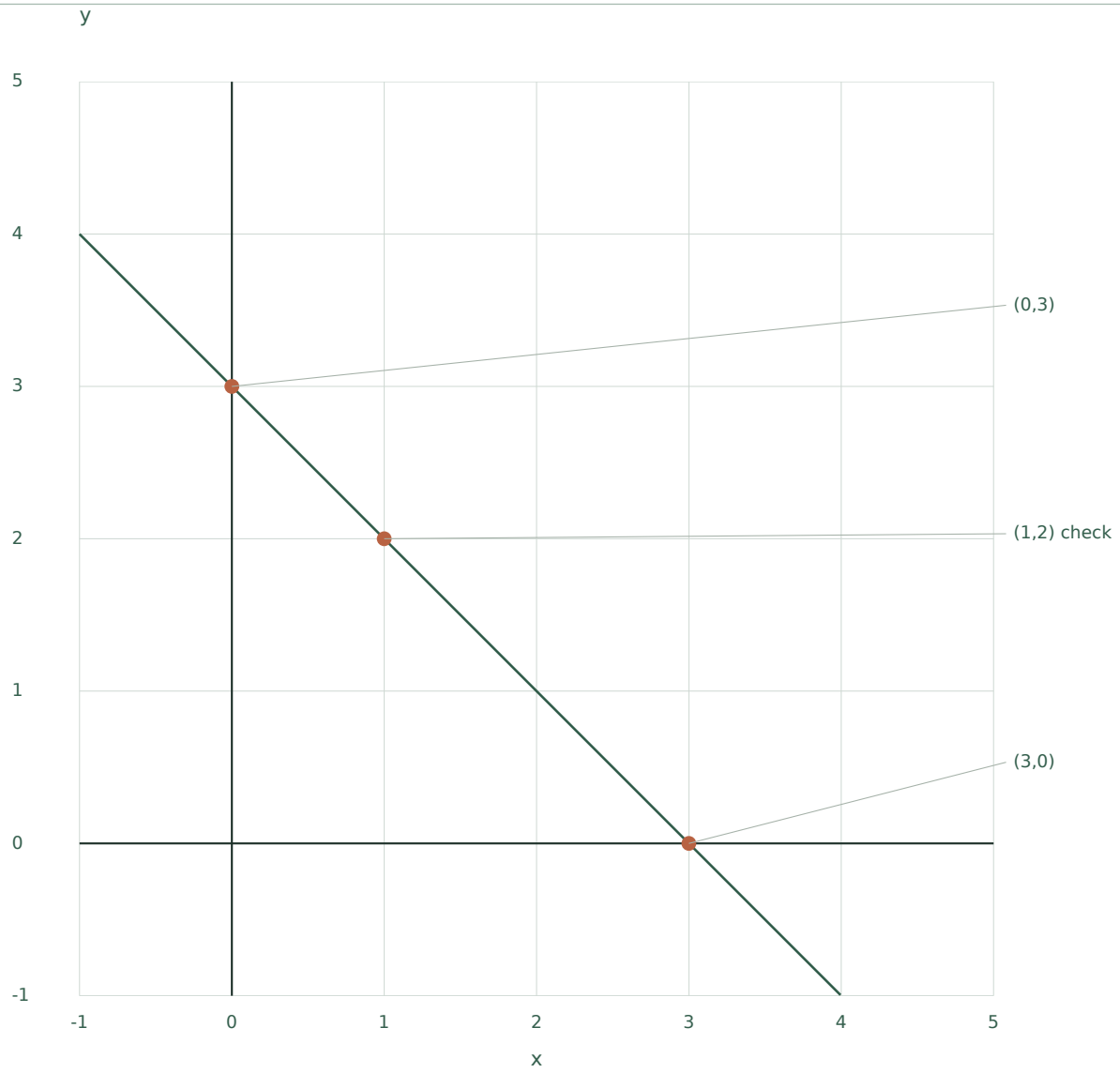
Task 3 answer: line through (4,1) and (6,2)



Answer plot with given point, rise/run point, and the check point. Coordinate labels sit outside the plot; thin grey leaders are annotations, not function curves.

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Task 4 answer: line through (0,3) and (3,0)



Answer plot with both intercepts and the x=1 check point. Coordinate labels sit outside the plot; thin grey leaders are annotations, not function curves.

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Source rubric / reflection

- [ ] Correctly identifies and applies the chosen method (table, intercepts, or slope-point).
- [ ] Computes coordinates accurately with consistent arithmetic.
- [ ] Plots points in the correct (x, y) order on the grid.
- [ ] Draws a straight line extending across the grid, not just between points.
- [ ] Labels the line with its equation.
- [ ] Uses a check (third point or substitution) to verify the line.

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