Graph a Line from a Point and Slope: Rise Over Run Practice

Rubric Key

Concise rubric mapping to reference graphs.

1. Given point plotted and labeled correctly.
2. At least one additional point plotted using correct rise and run.
3. Sign of slope applied correctly.
4. Straight line passes through all plotted points and extends across grid.
5. Scale stated if not one unit per square.
6. Valid alternative point orders or equivalent fractions accepted if slope and line are correct.

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Complete worked example / separate answer key

Graph the line through (1, 2) with slope 3/2. Use one unit per grid square.

Answer: Plot (1, 2). Move rise 3 and run 2 to reach (3, 5). Move again to reach (5, 8). Draw a straight line through (1, 2), (3, 5), and (5, 8). Check: (5 - 2)/(3 - 1) = 3/2.

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Original tasks 1, 2, 3 / complete keys

Task 1

Graph the line through (2, 1) with slope 1/2. Use one unit per grid square. Describe the points you plot.

Answer: Plot (2, 1). Move rise 1 and run 2 to reach (4, 2). Move again to reach (6, 3). Draw a straight line through these points.

Reason: Slope 1/2 means rise 1 for run 2. Starting at (2, 1), adding run 2 and rise 1 gives (4, 2), then (6, 3). The line rises gently from left to right.

Check: Count between (2, 1) and (4, 2): rise 1, run 2, so slope 1/2. Confirm the line passes through both points and is straight.

Task 2

Graph the line through (0, 4) with slope -2/3. Use one unit per grid square. Describe the points you plot.

Answer: Plot (0, 4). Move rise -2 and run 3 to reach (3, 2). Move again to reach (6, 0). Draw a straight line through these points.

Reason: Slope -2/3 means fall 2 for run 3. From (0, 4), moving right 3 and down 2 gives (3, 2), then (6, 0). The line falls from left to right.

Check: Between (0, 4) and (3, 2): change in y is -2, change in x is 3, so slope -2/3. Confirm the line passes through both points.

Task 3

Graph the line through (3, 3) with slope 2. Use one unit per grid square. Describe the points you plot.

Answer: Plot (3, 3). Write slope 2 as 2/1. Move rise 2 and run 1 to reach (4, 5). Move again to reach (5, 7). Draw a straight line through these points.

Reason: A whole-number slope is written over 1. Rise 2 and run 1 from (3, 3) gives (4, 5), then (5, 7). The line is steep and rises from left to right.

Check: Between (3, 3) and (4, 5): rise 2, run 1, so slope 2. Confirm the line passes through both points and extends straight.

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Original tasks 4 / complete keys

Task 4

Graph the line through (4, 2) with slope -1/4. Use one unit per grid square. Describe the points you plot.

Answer: Plot (4, 2). Move rise -1 and run 4 to reach (8, 1). From (4, 2), you can also move left 4 and up 1 to reach (0, 3). Draw a straight line through (0, 3), (4, 2), and (8, 1), extending it across the grid.

Reason: Slope -1/4 means fall 1 for run 4. From (4, 2), moving right 4 and down 1 gives (8, 1); moving left 4 and up 1 gives (0, 3). Both moves match the slope, and all three points lie within a 10 by 10 grid at one unit per square. The line falls gently from left to right.

Check: Between (4, 2) and (8, 1): change in y is -1, change in x is 4, so slope -1/4. Between (0, 3) and (4, 2): change in y is -1, change in x is 4, so the slope is again -1/4. Confirm the line passes through all three points and is straight.

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Task 1, Task 2, Task 3, Task 4 / Answer Key: Points, Rise/Run, and Slope Checks

Qualitative key; equivalent fractions and reversed move orders accepted.

Task 1: Plot (2, 1); move rise 1, run 2 to (4, 2), then (6, 3). Check: (2-1)/(4-2)=1/2.

Task 2: Plot (0, 4); move rise -2, run 3 to (3, 2), then (6, 0). Check: (2-4)/(3-0)=-2/3.

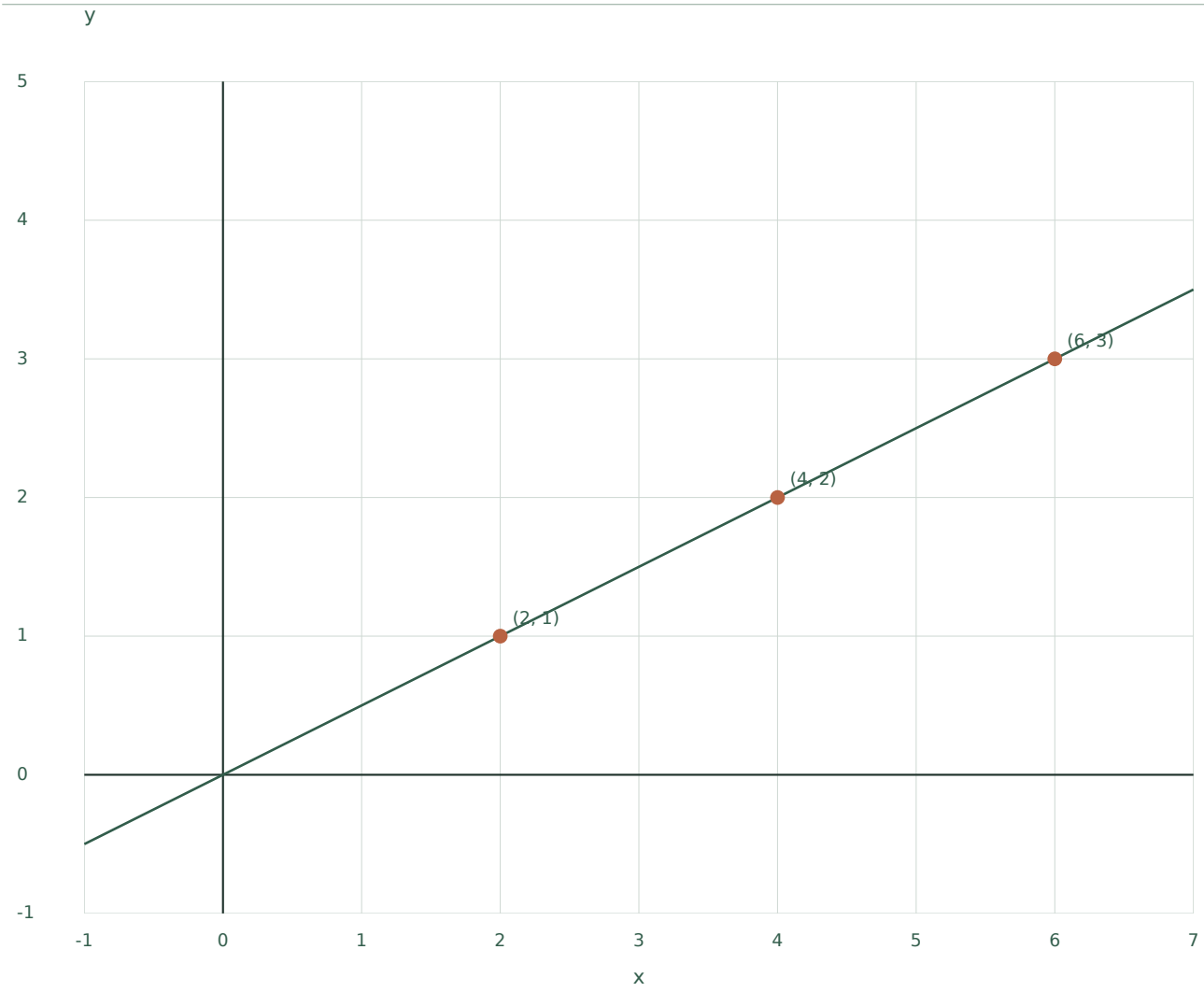
Task 3: Plot (3, 3); write 2 as 2/1; move rise 2, run 1 to (4, 5), then (5, 7). Check: (5-3)/(4-3)=2.

Task 4: Plot (4, 2); move rise -1, run 4 to (8, 1); also left 4 up 1 to (0, 3). Check: (1-2)/(8-4)=-1/4 and (2-3)/(4-0)=-1/4.

Valid alternatives: equivalent fractions such as 6/8 for 3/4, and reversed move orders, are accepted if the slope and line are correct.

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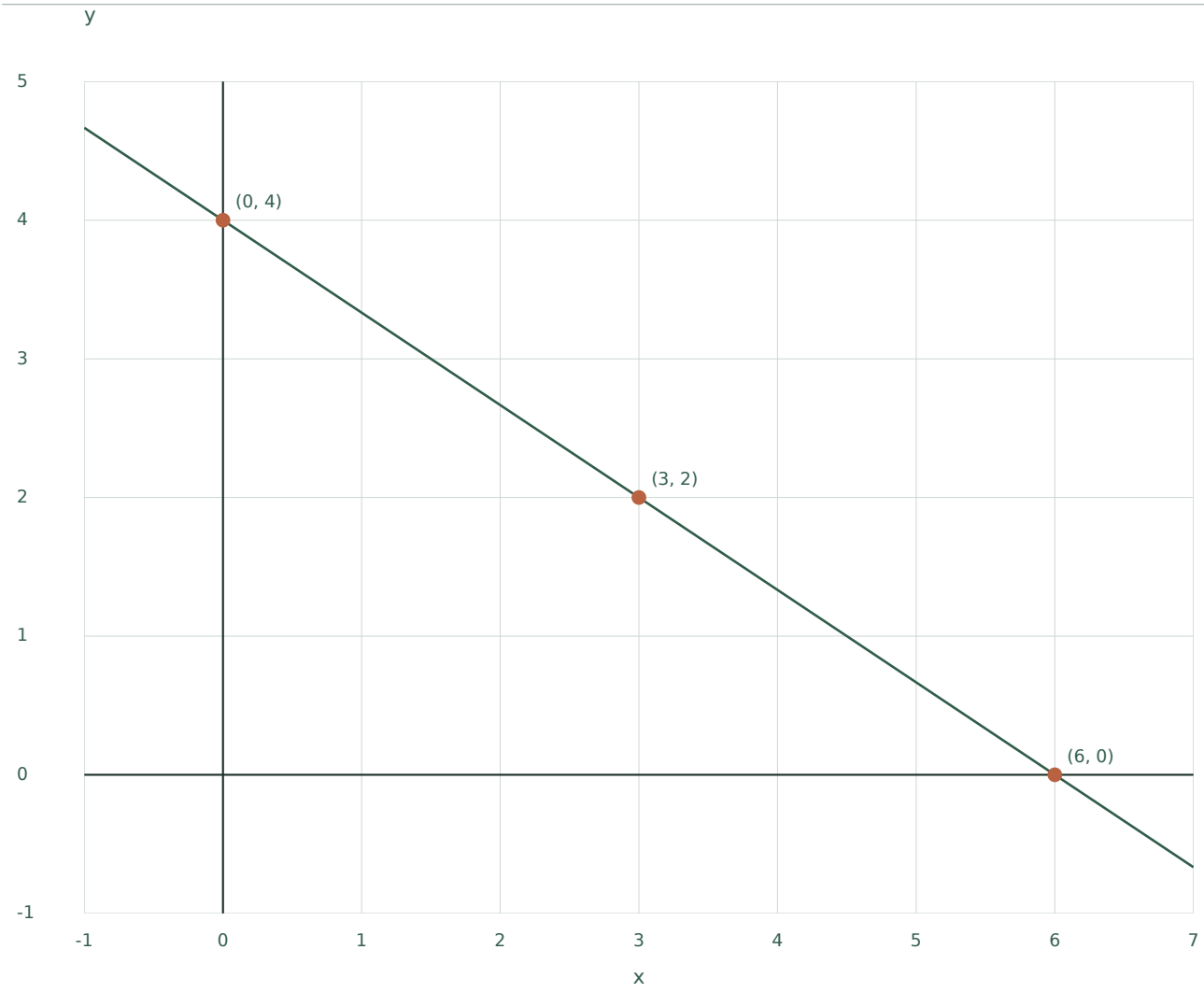
Task 1 / Task 1: Line through (2, 1) with slope 1/2



Rise 1, run 2; line rises gently.

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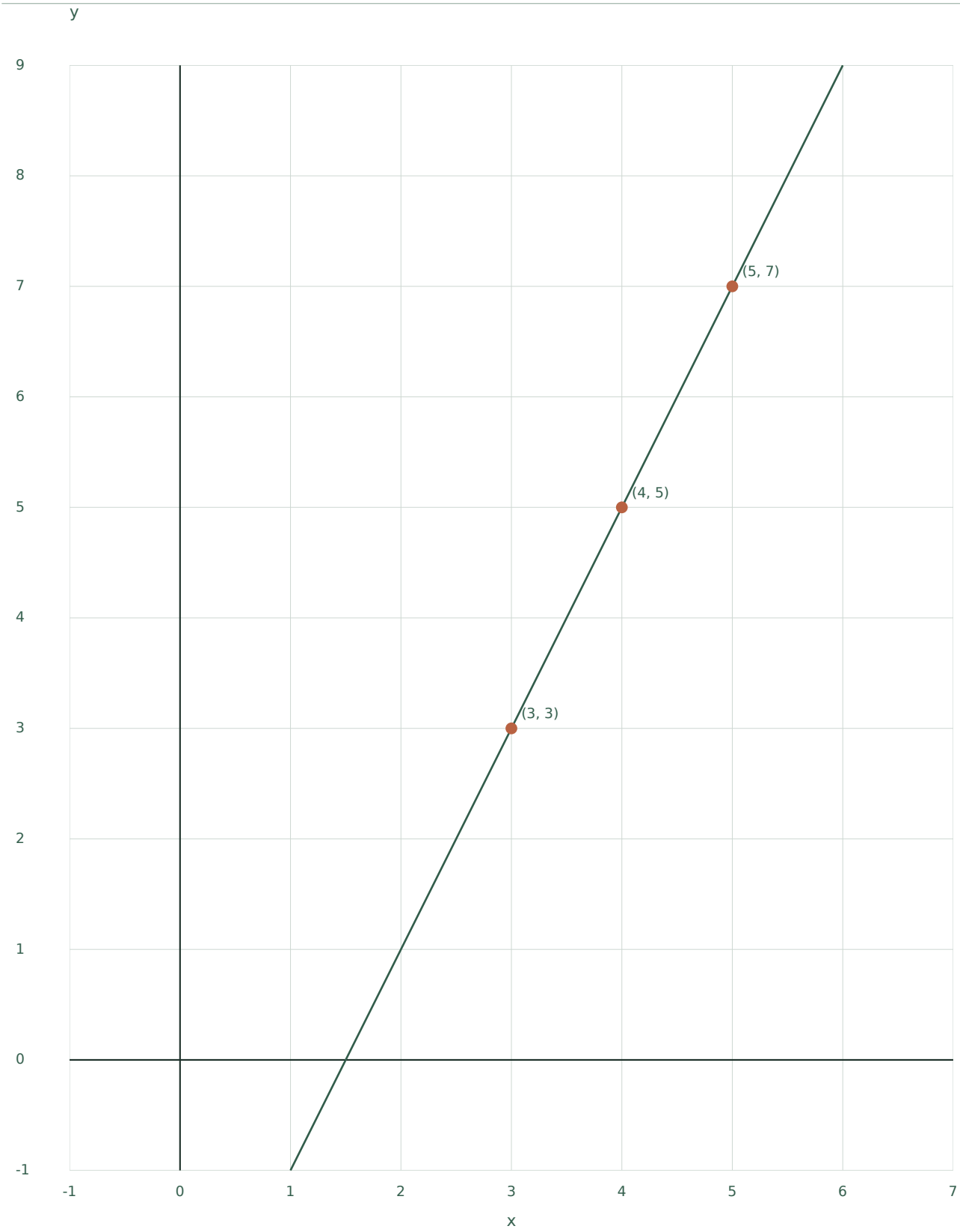
Task 2 / Task 2: Line through (0, 4) with slope -2/3



Fall 2, run 3; line falls left to right.

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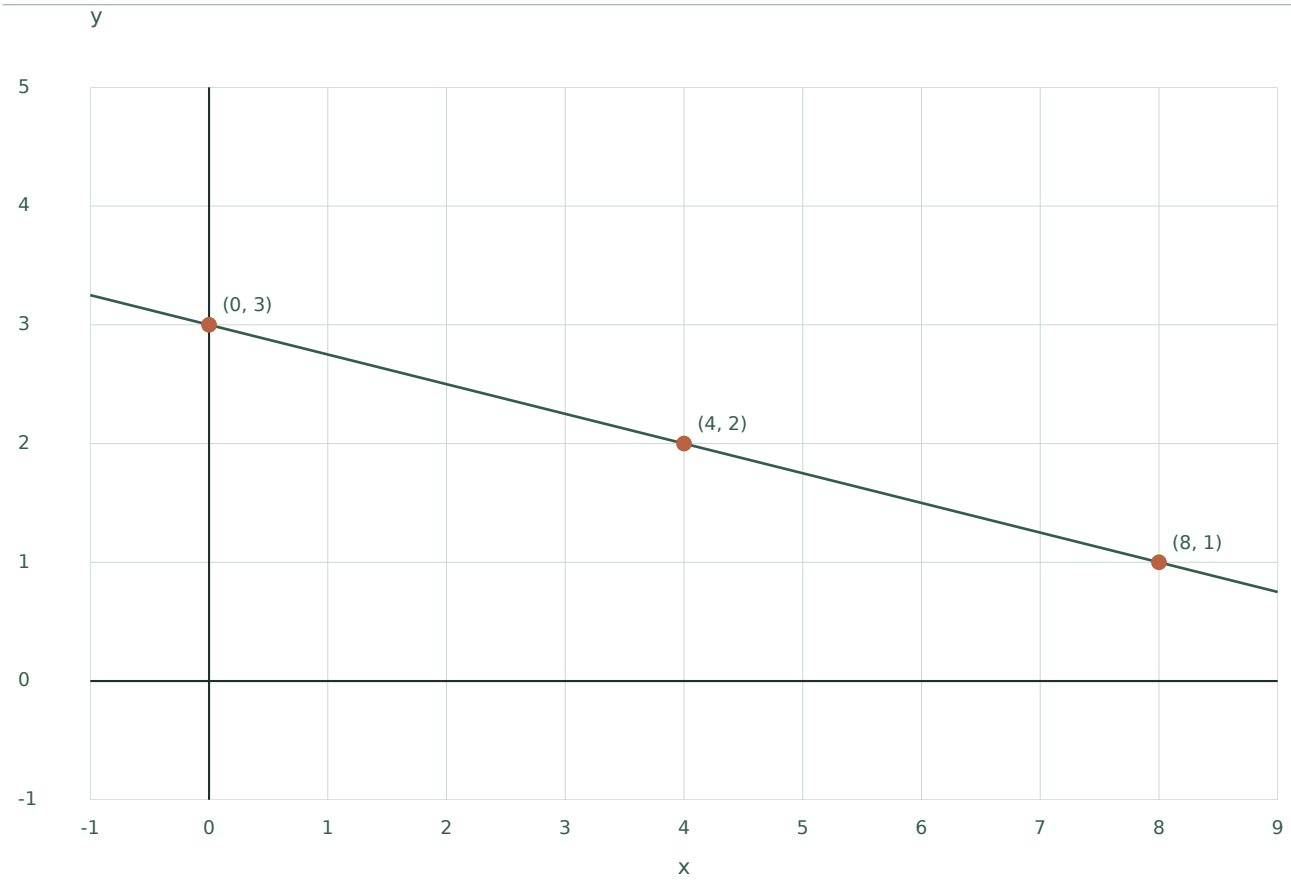
Task 3 / Task 3: Line through (3, 3) with slope 2



Slope 2 = 2/1; steep rise.

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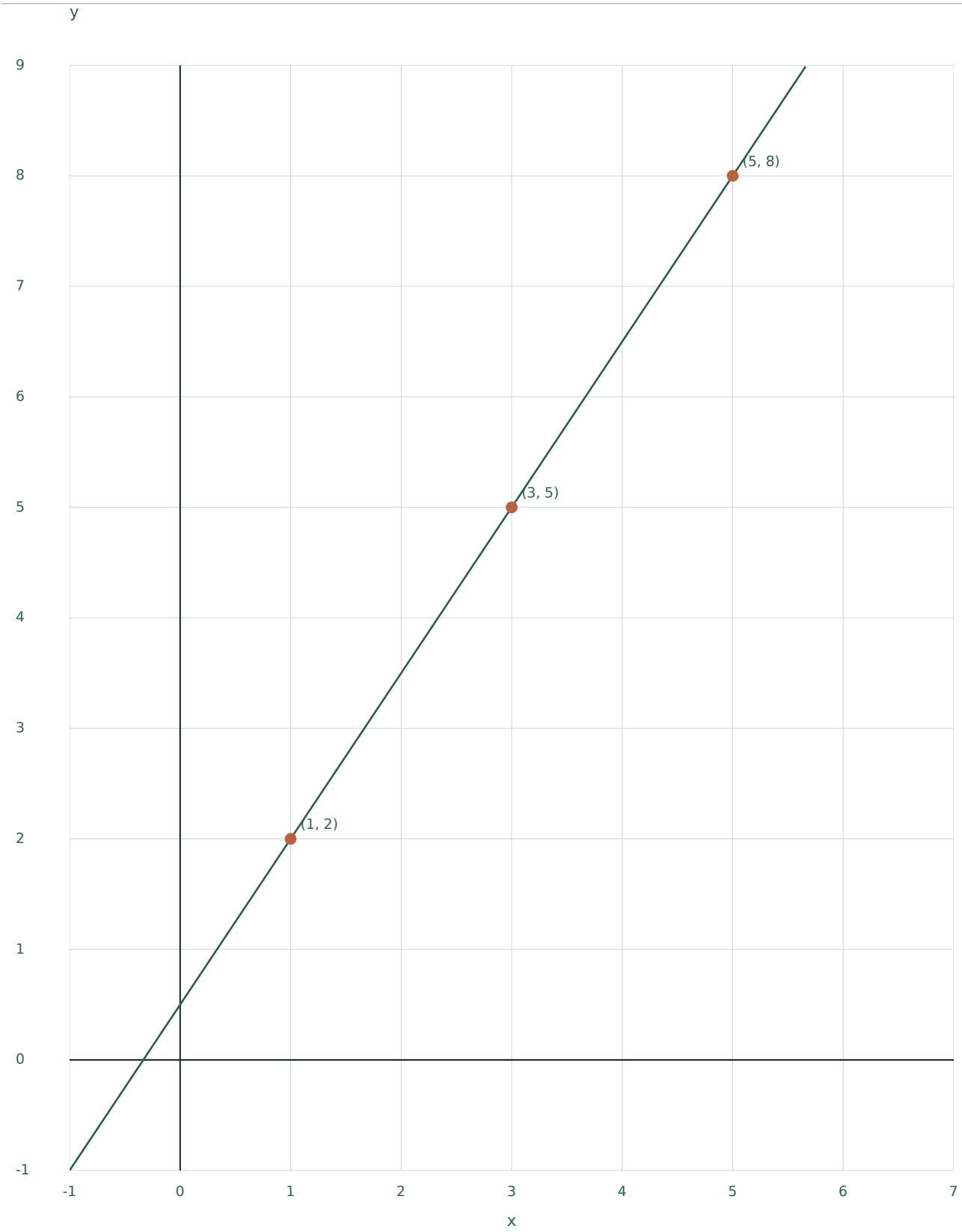
Task 4 / Task 4: Line through (4, 2) with slope -1/4



Fall 1, run 4; also left 4 up 1.

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Worked example / Worked Example: Line through (1, 2) with slope 3/2



Rise 3, run 2 from (1,2) to (3,5) to (5,8). Check: (5-2)/(3-1)=3/2.

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Source rubric / reflection

- [ ] The given point is plotted and labeled correctly.
- [ ] At least one additional point is plotted using the correct rise and run.
- [ ] The sign of the slope is applied correctly.
- [ ] A straight line passes through all plotted points and extends across the grid.
- [ ] The scale is stated if it is not one unit per square.
- [ ] Valid alternative point orders or equivalent fractions are accepted if the slope and line are correct.

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