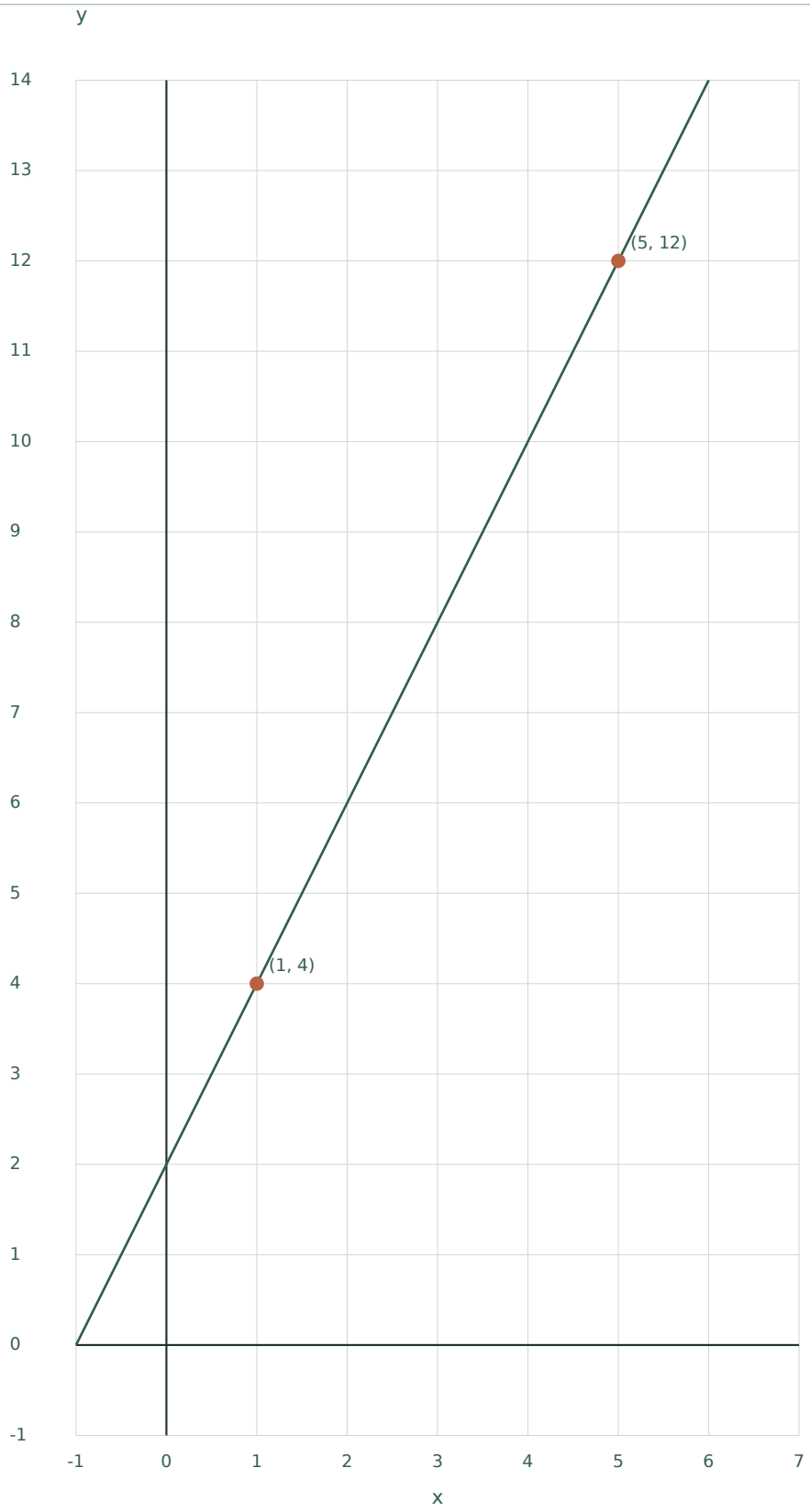
Derive a Linear Equation from Two Points: Slope-Intercept Method

Line through (1, 4) and (5, 12) with slope triangle



Slope triangle: horizontal run 4 from x=1 to x=5 at y=4; vertical rise 8 from y=4 to y=12 at x=5.

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Substitution step with y = mx + b labels

Worked example substitution: m=2, point (1,4), 4=2(1)+b, b=2.

Slope-intercept form: y = m x + b.

From the worked example: m = 2 and the chosen point is (1, 4).

Substitute: 4 = 2(1) + b.

Solve: 4 = 2 + b, so b = 2.

Final equation: y = 2x + 2.