Graphing Horizontal and Vertical Lines: x = a and y = b

Original worked example / complete source key

Prompt: Graph the line x = -3 on a coordinate grid with equal spacing on both axes, then state its slope.

Answer: The graph is a vertical line passing through -3 on the x-axis, labeled x = -3. Its slope is undefined.

Reason: The equation fixes x at -3 while y may be any value. Test points include (-3, 0), (-3, 2), and (-3, -4). Plotting and connecting them gives a line parallel to the y-axis. Between (-3, 0) and (-3, 2), the change in y is 2 and the change in x is 0, so slope is 2 divided by 0, which is undefined.

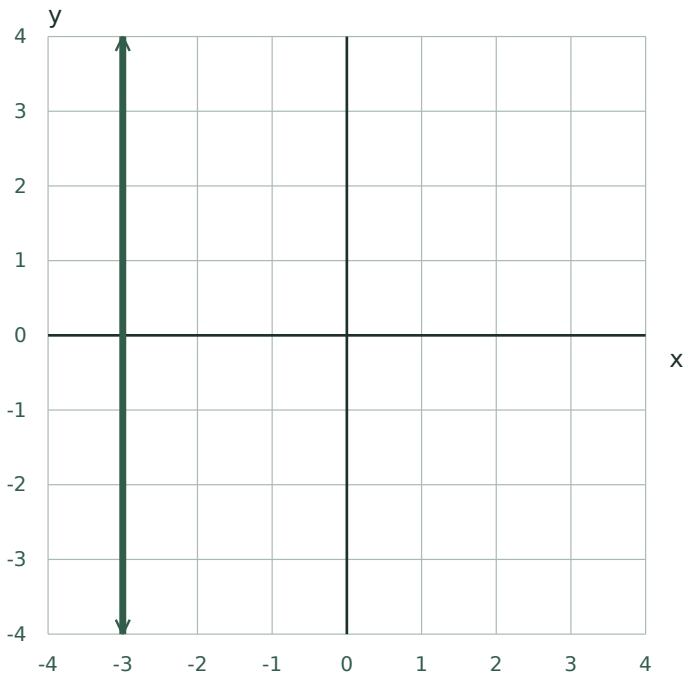
Check: Substitute each plotted point into x = -3; all should satisfy it. Confirm the line is parallel to the y-axis and that the label reads x = -3.

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Worked example / completed source graph

Graph the line x = -3 on a coordinate grid with equal spacing on both axes, then state its slope.

Line 1 (solid green): x = -3



A complete line continues beyond this display window; arrowheads show continuation.

Horizontal interval = 1; vertical interval = 1. This is a display window, not a new domain.