Find the Slope-Intercept Equation from a Graphed Line

Worked example / complete source key

A line on a coordinate grid crosses the y-axis at (0, -2). It also passes through (3, 4). Find the slope-intercept equation.

Answer: y = 2x - 2

Reason: The y-intercept is -2, so b = -2. Using points (0, -2) and (3, 4): rise = 4 - (-2) = 6, run = 3 - 0 = 3, so m = 6/3 = 2. Substitute into y = mx + b: y = 2x - 2. Check with (3, 4): 2(3) - 2 = 4, which matches.