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.