Chapter 6 Study Guide

Skill	Description	Example
Find the slope of a line.	Slope $= \frac{\text{rise}}{\text{run}}$ The slope of a line through $A(x_1, y_1)$ and $B(x_2, y_2)$ is: $\frac{y_2 - y_1}{x_2 - x_1}$	For A(2, −4) and B(−1, 3): Rise: $3 - (-4) = 7$ Run: $-1 - 2 = -3$ Slope: $\frac{7}{-3}$, or $-\frac{7}{3}$
Identify parallel lines and perpendicular lines.	Parallel lines have equal slopes. Perpendicular lines have slopes that are negative reciprocals.	Line AB has slope $-\frac{7}{3}$. Line CD has slope $-\frac{7}{3}$. Line EF has slope $\frac{3}{7}$. Lines AB and CD are parallel. Lines AB and EF are perpendicular. Lines CD and EF are perpendicular.
Write the equation of a line in slope-intercept form.	A line with slope, m, and y-intercept, b, has equation: $y = mx + b$	For a line with slope 3 and y-intercept −2, an equation is: $y = 3x - 2$
Write the equation of a line in slope-point form.	A line with slope, m, that passes through $P(x_1, y_1)$, has equation: $y - y_1 = m(x - x_1)$	A line with slope −4 that passes through P(−1, 3) has equation: $y - 3 = -4(x - (-1))$, or $y - 3 = -4(x + 1)$
Find the intercepts of a line when its equation is in general form.	The general form of an equation is: $Ax + By + C = 0$, where A, B, and C are integers, and A is positive	A line has equation: $3x - 2y + 6 = 0$ For the y-intercept, substitute $x = 0$: $3(0) - 2y + 6 = 0$ $-2y = -6$ $y = 3$ For the x-intercept, substitute $y = 0$: $3x - 2(0) + 6 = 0$ $3x + 6 = 0$ $3x = -6$ $x = -2$