

LINEAR EQUATIONS

Slope Intercept Form	Point Slope Form	Standard Form
$y = mx + b$	$y - y_1 = m(x - x_1)$	$Ax + By = C$ A must be positive A, B, & C are integers
m = slope b = y-intercept -b/m = x-intercept	m = slope (x ₁ , y ₁) = point on the line	-A/B = slope C/B = y-intercept C/A = x-intercept

EXAMPLES OF THE EXACT SAME LINE IN ALL 3 FORMS

$y = -2x - 1$	$y - 5 = -2(x + 3)$	$2x + y = -1$
-2 is m = slope -1 is b = y-intercept	-2 is m = slope (-3, 5) is (x ₁ , y ₁) = point	The coefficient of x is NOT equal to the slope.

How to find intercepts.

x-intercept (#, 0) Set y = 0 and solve for x.

y-intercept (0, #) Set x = 0 and solve for y.

How to find slope from two points,

$$(x_1, y_1) \text{ \& \; } (x_2, y_2) \quad m = \frac{y_2 - y_1}{x_2 - x_1}$$

|| Parallel Lines have equal slopes.

Examples: 3 & 3, 0 & 0, -2 & -2, undefined & undefined

⊥ Perpendicular Lines have negative reciprocal slopes (opposite sign & flipped).

Examples: 5/8 & -8/5, -3 & 1/3, 1 & -1, 0 & undefined