8.EE.C.8.A

Expressions & Equations

Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.

I can convert equations from Standard Form to Slope-intercept form and vice versa.

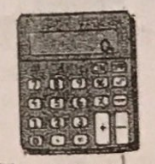
What is slope-intercept form?

$y = mx + b$

What is standard form?

$Ax + By = C$

Standard Form



* A, B, & C are integers.
* A is positive

Steps to converting an equation from:

$Ax + By = C \longrightarrow y = mx + b$

Standard Form to Slope-Intercept Form

Step 1: move any term that is on the same side as y to the other side of the equal sign by adding or subtracting.

Step 2: divide both sides of the equation by the coefficient in front of y.

Step 3: If Possible, Simplify

Example:

Convert $4x + 2y = 8$ into slope-intercept form.

$-4x \quad -4x$ ← Step 1

$\frac{2y}{2} = \frac{-4x}{2} + \frac{8}{2}$ ← Step 2

← Step 3 (Simplify)

$y = -2x + 4$ ← Answer

$y = mx + b$

$y = mx + b \longrightarrow Ax + By = C$

Slope-Intercept Form to Standard Form

Step 1: multiply both sides of equation by the LCD. (only need this step if fractions).

Step 2: move the x term to the same side as the y term.

Step 3: multiply both sides of equation by −1 if needed to make A positive.

Example:

Convert $y = -\frac{3}{4}x + 5$ into standard form.

LCD = 4

$4\left(y = -\frac{3}{4}x + 5\right)$ ← Step 1

$4y = -\frac{12}{4}x + 20$ simplify fractions

$4y = -3x + 20$ ← Step 2

$+3x \quad +3x$

$3x + 4y = 20$ ← Answer

$Ax + By = C$

Extra Example:

$x - y = 3$

$-x \quad -x$

$\frac{-1y}{-1} = \frac{-x + 3}{-1}$

$y = x - 3$

Extra Example:

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$2y = \frac{2}{3}x - \frac{3}{4}$ LCD = 12

$12\left(2y = \frac{2}{3}x - \frac{3}{4}\right)$

$24y = \frac{24}{3}x - \frac{36}{4}$ simplify fractions

$24y = 8x - 9$