STANDARD FORM OF A LINE

INDEPENDENT VARIABLE → $Ax + By = C$ ← DEPENDENT VARIABLE

A, B, & C = CONSTANTS

- A, B, & C MUST BE INTEGERS.
- A, B, & C MUST HAVE NO COMMON FACTORS OTHER THAN 1.
- A & B CAN'T BOTH BE 0 AT THE SAME TIME.
- A CAN'T BE NEGATIVE.

RECALL:

SLOPE-INTERCEPT FORM OF A LINE

$y = mx + b$

CONVERT TO STANDARD FORM

Ex) $y = 3x + 7$

$-3x \quad -3x$

$-3x + y = 7$

$\frac{-3x}{-1} + \frac{y}{-1} = \frac{7}{-1}$

$\boxed{3x - y = -7}$

Ex) $y = \frac{2}{5}x - 6$

$-\frac{2}{5}x \quad -\frac{2}{5}x$

$-5\left(-\frac{2}{5}x + y\right) = (-6)(-5)$

$-\frac{5}{1}\left(-\frac{2}{5}x\right) + (-5)(y) = 30$

$\frac{10}{5}x - 5y = 30$

$\boxed{2x - 5y = 30}$

Ex) $y = -\frac{1}{3}x + 8$

$+\frac{1}{3}x \quad +\frac{1}{3}x$

$3\left(\frac{1}{3}x + y\right) = (8)(3)$

$\frac{3}{1}\left(\frac{1}{3}x\right) + 3(y) = 24$

$\frac{3}{3}x + 3y = 24$

$1x + 3y = 24$

OR

$\boxed{x + 3y = 24}$

Ex:) $y = \frac{3}{8}x - 9$

$-\frac{3}{8}x \quad -\frac{3}{8}x$

$-8\left(-\frac{3}{8}x + y\right) = (-9)(-8)$

$-\frac{8}{1}\left(-\frac{3}{8}x\right) + (-8)(y) = 72$

$\frac{24}{8}x - 8y = 72$

$\boxed{3x - 8y = 72}$

OYO:) $y = \frac{2}{9}x + 12$

$-\frac{2}{9}x \quad -\frac{2}{9}x$

$-9\left(-\frac{2}{9}x + y\right) = (12)(-9)$

$-\frac{9}{1}\left(-\frac{2}{9}x\right) + (-9)(y) = -108$

$\frac{18}{9}x - 9y = -108$

$\boxed{2x - 9y = -108}$

OYO