Graphing Linear Equations

May 15

A linear equation graphs a line.

Standard form: $Ax + By = C$

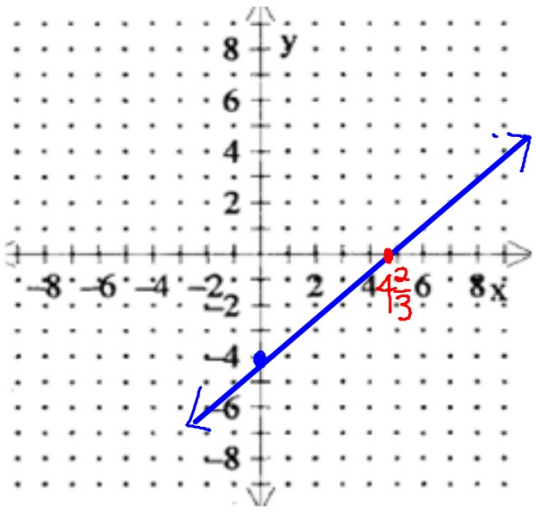
A, B both not zero
A, B, C are integers.

Ex. 1

Find the x-intercept (x, 0) and y-intercept (0, y) of the line $6x - 7y = 28$ and graph the line.

x-int
$6x - 7 \cdot 0 = 28$
$6x = 28$
$x = 4\frac{4}{6} = 4\frac{2}{3}$
$(4\frac{2}{3}, 0)$

y-int $(0, -4)$
$6 \cdot 0 - 7y = 28$
$y = -4$



Slope-intercept form $y = mx + b$

m = slope

$(0, b)$ - y-intercept

(x, y) any pt on line

Ex. 2

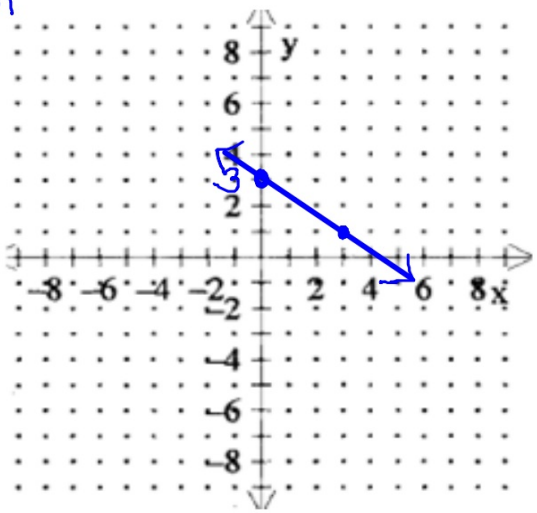
Graph $4x + 6y = 18$ using slope and y-intercept.

$$\frac{6y}{6} = \frac{-4x}{6} + \frac{18}{6}$$

$$y = -\frac{2}{3}x + 3$$

m: $-\frac{2}{3}$ ($\frac{\text{rise}}{\text{run}}$)

b: $(0, 3)$



vertical line: ↕ $x = K$ (K is a #)

horizontal line: ↔ $y = K$

Ex. 3

Graph $y = 4$ (1, 4) (-3, 4)

and $x = -5$

(-5, 0) (-5, 4)