

5.4 Standard Form

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Recall

$$\begin{aligned} 3(x+4) &= \cancel{3x+4} \\ 3(x) + 3(4) & \\ \underline{\underline{3x+12}} & \end{aligned}$$

Today ...

This is the process

$$y - y_1 = m(x - x_1)$$

$$\hookrightarrow y = mx + b$$

$$\hookrightarrow \underline{\underline{Ax + By = C}}$$

Pt. Slope form

↳ Slope-Int.

↳ Standard form

Recall

Standard form:

$$Ax + By = C$$

- where $A \neq B$ cannot Both
Be Zero.

- $A \neq B$ are coefficients

$A \neq B$ are Integer (coefficients)

No Decimals (no fractions)

write. $y = \frac{2}{5}x - 3$ in Standard Form (S.F.)
Standard form

$$5 \cdot y = \left(\frac{2}{5}x - 3 \right) \cdot 5$$

$$5y = \cancel{5} \left(\frac{2}{\cancel{5}}x \right) - 5(3)$$

$$5y = 2x - 15$$

$-2x$ $-2x$

$$\underline{\underline{-2x + 5y = -15}}$$

$$Ax + By = C$$

What's the Problem
Fraction
- Not All Variables on Left.

$$\begin{aligned} A &= -2 \\ B &= 5 \\ C &= -15 \end{aligned}$$

$$3(y) = \left(-\frac{2}{3}x + 4 \right) 3 \rightarrow S.F.$$

$$3y = -2x + 12$$

+2x

+2x

$$2x + 3y = 12$$

$$\begin{aligned} A &= 2 \\ B &= 3 \\ C &= 12 \end{aligned}$$

Write in S.F. the line that
Passes through $(-4, 3)$ + Slope of 2

Process Given
Slope + 1 Pt \Rightarrow P.S.F. \Rightarrow S.I.F. \Rightarrow S.F.

$$y - y_1 = m(x - x_1)$$

$$y - 3 = 2(x + 4)$$

$$y - 3 = 2(x + 4)$$

$$y - 3 = 2x + 8$$

$$+3 \quad +3$$

$$y = 2x + 11$$

$$-2x \quad -2x$$

$$-2x + y = 11$$

$$A = -2$$

$$B = 1$$

$$C = 11$$

Write the eq. in S.F. that intersects at $(4, 0)$ + $(0, 3)$ S.F.

* 2 Pts \rightarrow Slope (x_1, y_1) (x_2, y_2) - y-int.

* 1 P.T + Slope \rightarrow P.S.F \rightarrow S.I.F \rightarrow S.F.

$$m = \text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{3 - 0}{0 - 4} = \frac{3}{-4} = -\frac{3}{4} \text{ better way } \begin{bmatrix} -3 \\ -4 \end{bmatrix}$$

$$y - y_1 = m(x - x_1) \quad y - 3 = -\frac{3}{4}(x - 0)$$

$$y - 0 = -\frac{3}{4}(x - 4) \quad 4(y - 3) = (-\frac{3}{4}x)4$$

$$4(y) = (-\frac{3}{4}x + 3)4 \quad 4y - 12 = -3x$$

$$\begin{array}{r} 4y = -3x + 12 \\ +3x \quad \quad +3x \\ \hline 3x + 4y = 12 \end{array}$$

$$\underline{3x + 4y = 12}$$

2 Pts \rightarrow Slope
y-int + Slope \rightarrow S.I.F \rightarrow S.F.

$$y = mx + b$$

$$y = -\frac{3}{4}x + 3$$

$$A = 1$$

$$B = 0$$

$$C = -5$$

$x = -5$
is that in
 $Ax + By = C$ form?

$$1x + 0y = -5$$

Write the equation
for the given lines
in S.F.



$y = -3$
is that in
 $Ax + By = C$

$$0x + 1y = -3$$

$$A = 0$$

$$B = 1$$

$$C = -3$$

O.T.L

① * Write Summary Box
on pg 293 into Notes

② pg 294-295:
1, 2, 15, 19, 20, 21, 25, 28, 29,
39-51(a)

③ Chapter Test Next Week & Notebooks