

5.4 Standard Form

Dec. 06, 2006

Recall

$$3(x+4) = \cancel{3x+4}$$

$$3(x) + 3(4)$$

$$\underline{\underline{3x+12}}$$

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 & B cannot Both Be Zero.

- A & B are coefficients

A & B are Integer (coefficients)

No Decimals (no fractions)

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

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

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

$$5y = 2x - 15$$

$$\begin{array}{r} -2x \\ \hline \end{array}$$

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

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

$$A = -2$$

$$B = 5$$

$$C = -15$$

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

$$\begin{array}{r} 3y = -2x + 12 \\ +2x \quad \quad +2x \\ \hline 2x + 3y = 12 \end{array}$$

$$\begin{array}{l} A = 2 \\ B = 3 \\ C = 12 \end{array}$$

Write in S.F. the line that
Passes through $(-4, 3)$ + Slope of 2
 (x_1, y_1)

Process
Slope + 1 Pt \Rightarrow P.S.F. \Rightarrow ~~S.I.F.~~ S.F.
"sort of"

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

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

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

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

$$+3 \quad +3$$

$$y = 2x + 11$$

$$\begin{array}{r} -2x \quad -2x \\ \hline -2x + y = 11 \end{array}$$

$$A = -2$$

$$B = 1$$

$$C = 11$$

$$\begin{array}{r} y - 3 = 2x + 8 \\ -2x \quad +3 \quad -2x \quad +3 \\ \hline -2x + y = 11 \\ \hline \hline \end{array}$$

intersects at $(4, 0)$ + $(0, 3)$ S.F.
* 2 Pts \rightarrow Slope (x_1, y_1) (x_2, y_2) S.F.

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

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

$$m = \frac{3 - 0}{0 - 4} = \frac{3}{-4} = \underline{\underline{-\frac{3}{4}}}$$

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

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

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

$$4y = -3x + 12$$

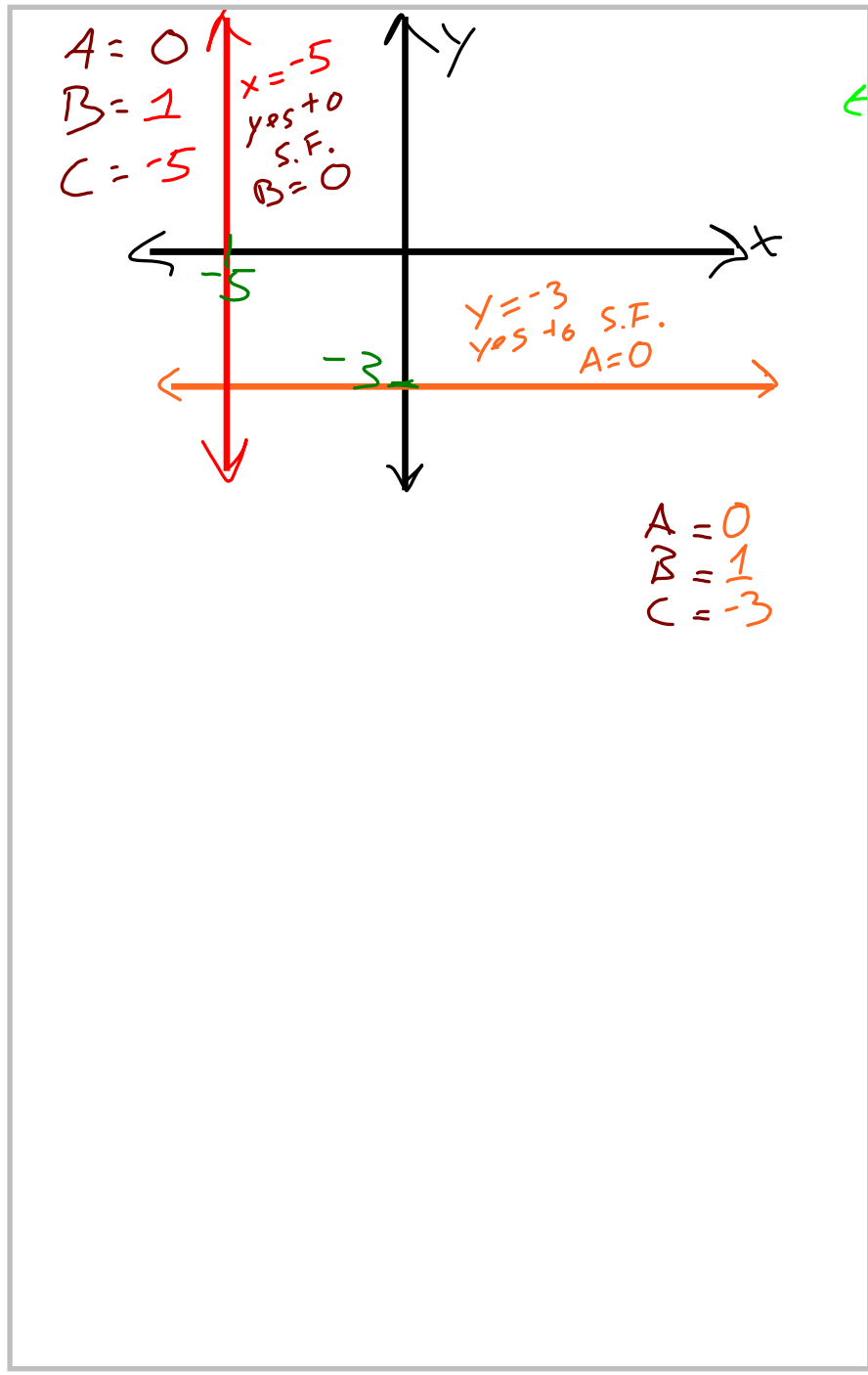
$$+3x \quad +3x$$

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

$$A = 3$$
$$B = 4$$
$$C = 12$$

2 Pts \rightarrow Slope
y-int + Slope \rightarrow S.I.F \rightarrow S.F.
 $y = mx + b$

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



O.T.L. * ⑤ ... Fix, Redo, + Make Ans.
Sheet. for the 5.3+5.4

① * Write Summary Box Quiz
on pg 293 into Notes wk.st.

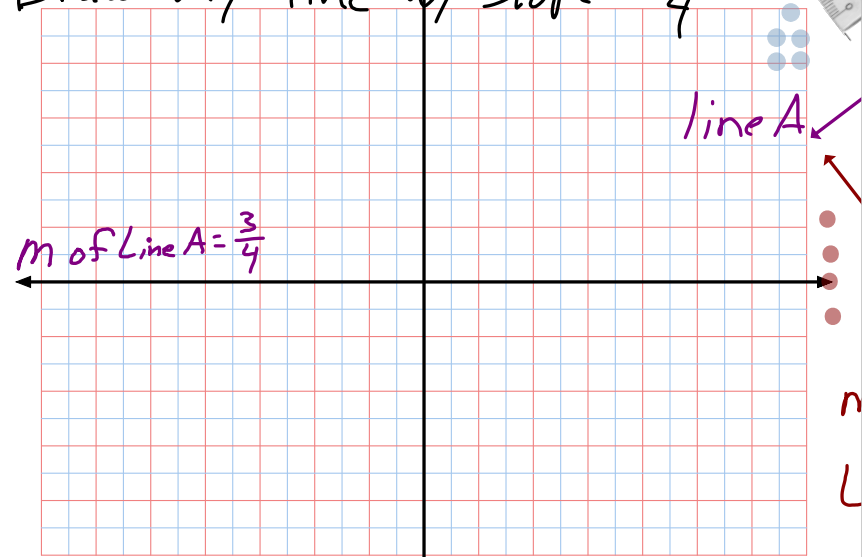
② pg 294-295:
1, 2, 15, 19, 20, 21, 25, 28, 29,
39-51(a)

③ Chapter Test Friday

7:00 am
Review Session

Perpendicular lines: 2 lines in the Same Plane that intersect at a Right or 90° angle.

Draw any line w/ Slope = $\frac{3}{4}$



$\perp \Rightarrow$ Perpendicular
Line A \perp Line B