

# 5.4 Standard Form

Dec. 06, 2006

Recall

$$3(x+4) = \cancel{3x+4}$$
$$3(x) + 3(4)$$
$$\underline{\underline{3x+12}}$$

Today... The Process

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

$$\rightarrow y = mx + b$$

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

pt - Slope Form

↳ Slope - Int. Form.

↳ 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

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

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

$$5y = 2x - 15$$

$$\begin{array}{r} -2x \\ \hline -2x + 5y = -15 \end{array}$$

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

$$\begin{array}{l} A = -2 \\ B = 5 \\ C = -15 \end{array}$$

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

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

$$+2x$$

$$+2x$$

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$$2x + 3y = 12$$

$$A = 2$$

$$B = 3$$

$$C = 12$$

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.  $\Rightarrow$  S.F.

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

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

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

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

$$\begin{array}{r} +3 \\ \hline \end{array}$$

$$y = 2x + 11$$

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

$$\begin{array}{l} A = -2 \\ B = 1 \\ C = 11 \end{array}$$

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

$$-2x + y = 11$$

\* 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.

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

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

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

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

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

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

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

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

$$A = 3$$

$$B = 4$$

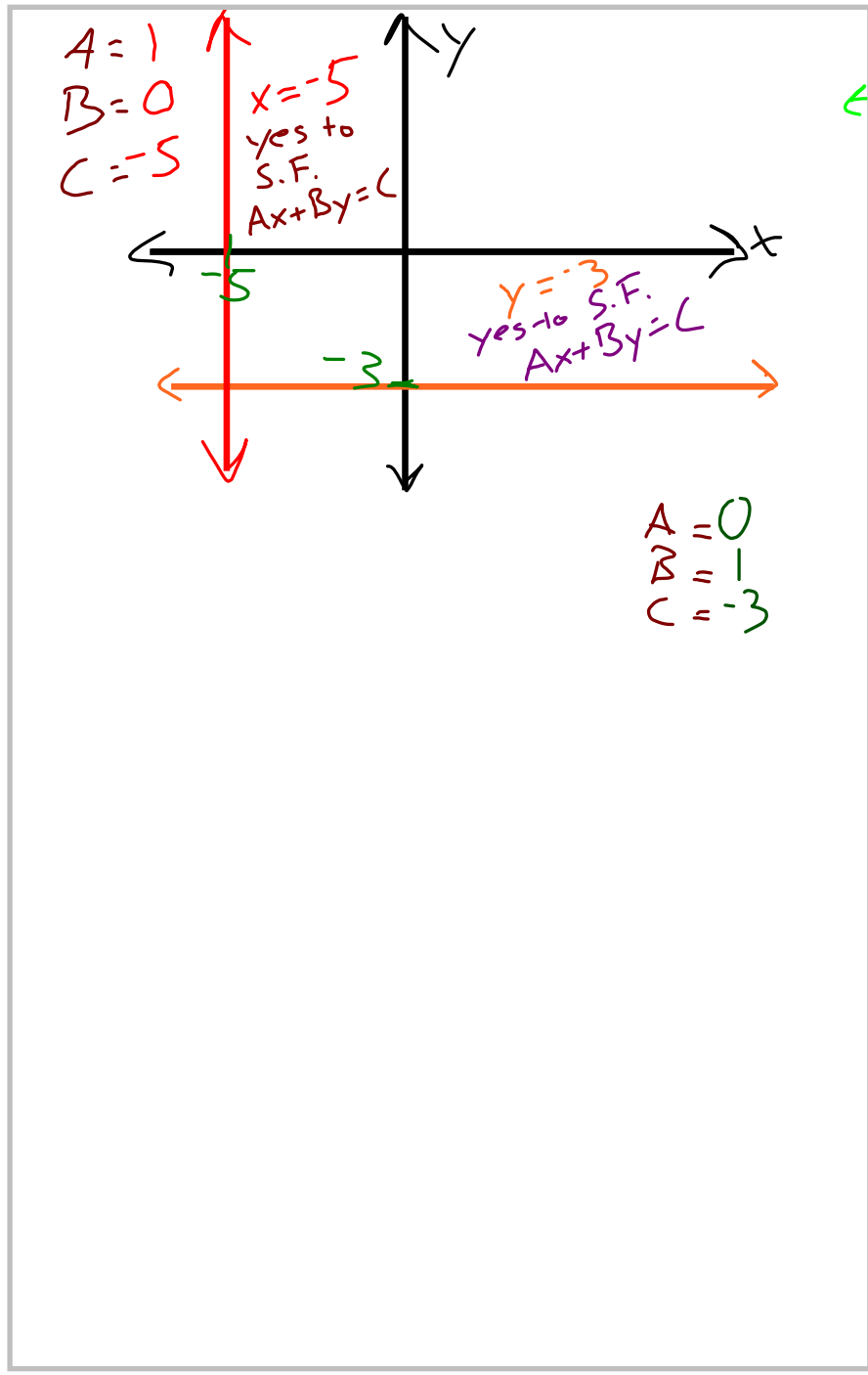
$$C = 12$$

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 Wk.st.  
on pg 293 into Notes

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

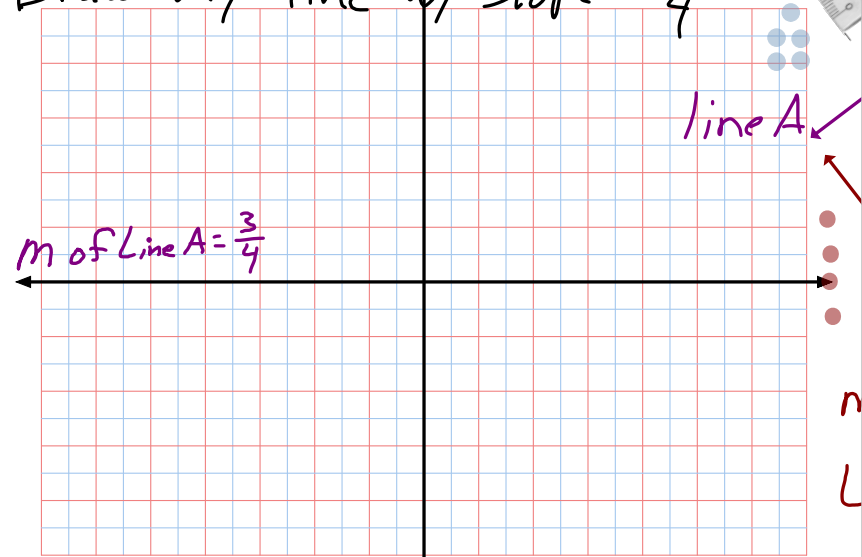
③ Chapter Test Friday

7:00 am  
Review Session



**Perpendicular lines**: 2 lines in the Same Plane that intersect at a Right or  $90^\circ$  angle.

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



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