5.4 Standard Form

Mar. 13, 2007

Recall

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

$3(x)+3(4)$

$3x+12$

Today . . . This is the Process

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

↳ $y = mx + b$

↳ $Ax + By = C$

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

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

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

$5y = 2x - 15$

$-2x \quad -2x$

$-2x + 5y = -15$

$Ax + By = C$

Whats the Problem
- ✓ Fraction
- ✓ Not All Variables on Left.

$A = -2$

$B = 5$

$C = -15$

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

$3y = -2x + 12$

$+2x \qquad +2x$

$2x + 3y = 12$

$A = 2$

$B = 3$

$C = 12$

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

(x_1, y_1)

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

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

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

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

$y - 3 = 2x + 8$

$+3 \quad +3$

$y = 2x + 11$

$-2x \quad -2x$

$-2x + y = 11$

$y - 3 = 2x + 8$

$-2x \quad +3 \quad -2x + 3$

$-2x + y = 11$

$A = -2$

$B = 1$

$C = 11$

Write in S.F. the equation of the line

** intersects at (4, 0) (x_1, y_1) & (0, 3) (x_2, y_2) S.F.

* 2 Pts (Given) → Slope

1 Pt & Slope → P.S.F → S.I.F → S.F.

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

$m = \frac{3 - 0}{0 - 4} = \frac{3}{-4} = -\frac{3}{4}$ better way

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

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

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

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

$4y = -3x + 12$

$+3x \quad +3x$

$3x + 4y = 12$

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

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

$+12 \quad +12 \quad +3x$

$3x + 4y = 12$

A = 3

B = 4

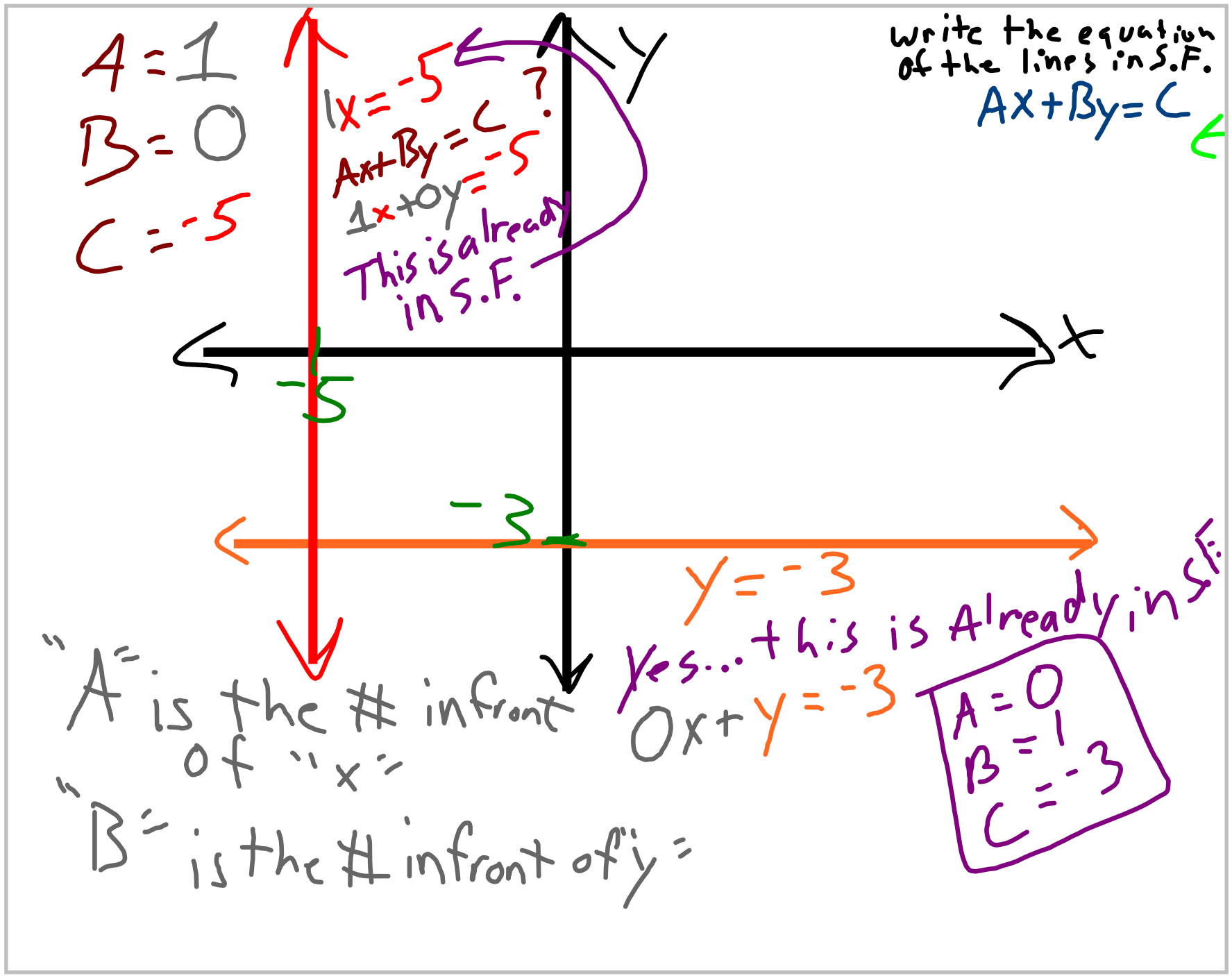
C = 12

2 Pts → Slope

y-int & Slope → S.I.F → S.F.

$y = mx + b$

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


A=1
B=0
C=-5
x=-5
Ax+By=C ?
1x+0y=-5
This is already in S.F.
y
x
-5
-3
Write the equation of the lines in S.F.
Ax+By=C
y=-3
Yes... this is Already in S.F.
0x+y=-3
A=0
B=1
C=-3
"A" is the # infront of "x"
"B" is the # infront of "y"

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