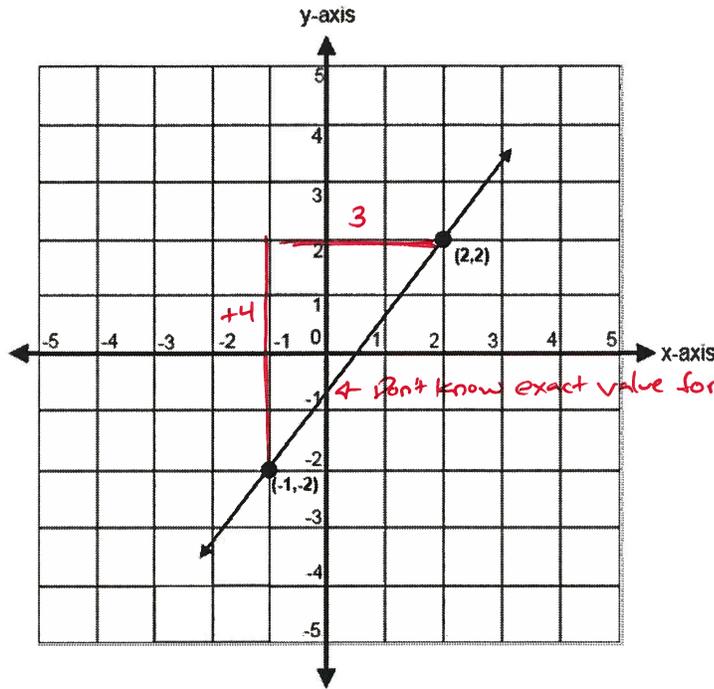


142 - Chapter 7 Review

Part 1 - Slope y-Intercept Form ($y=mx+b$)

Q1: Write the equation of the line in Slope y-Intercept Form.



$$m = \frac{\text{rise}}{\text{run}} = \frac{4}{3}$$

$$y = mx + b$$

$$y = \frac{4}{3}x + b \quad \text{Use } (2, 2)$$

$$2 = \frac{4}{3}(2) + b$$

$$2 = \frac{8}{3} + b$$

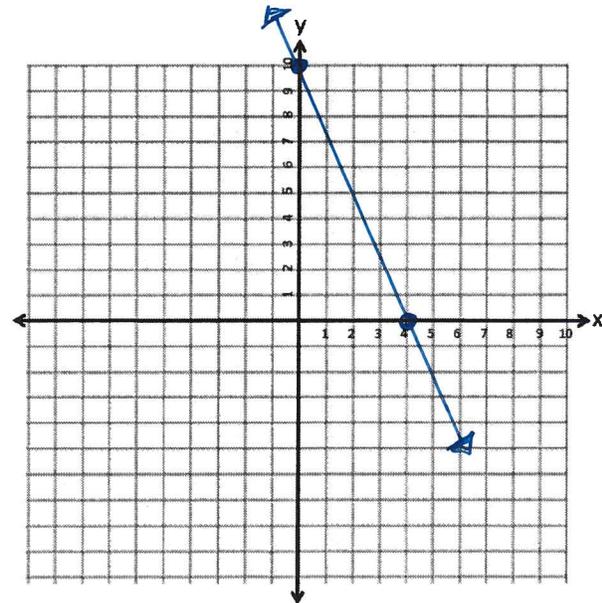
$$-\frac{8}{3} \quad -\frac{8}{3}$$

$$-\frac{2}{3} = b$$

$$y = \frac{4}{3}x - \frac{2}{3}$$

Part 2 - General Form ($Ax+By+C=0$)

Q2: Graph the line $5x+2y-20=0$



x-int (set $y=0$)

$$5x + 2(0) - 20 = 0$$

$$5x - 20 = 0$$

$$+20 \quad +20$$

$$5x = 20$$

$$\div 5 \quad \div 5$$

$$x = 4$$

y-int (set $x=0$)

$$5(0) + 2y - 20 = 0$$

$$2y - 20 = 0$$

$$+20 \quad +20$$

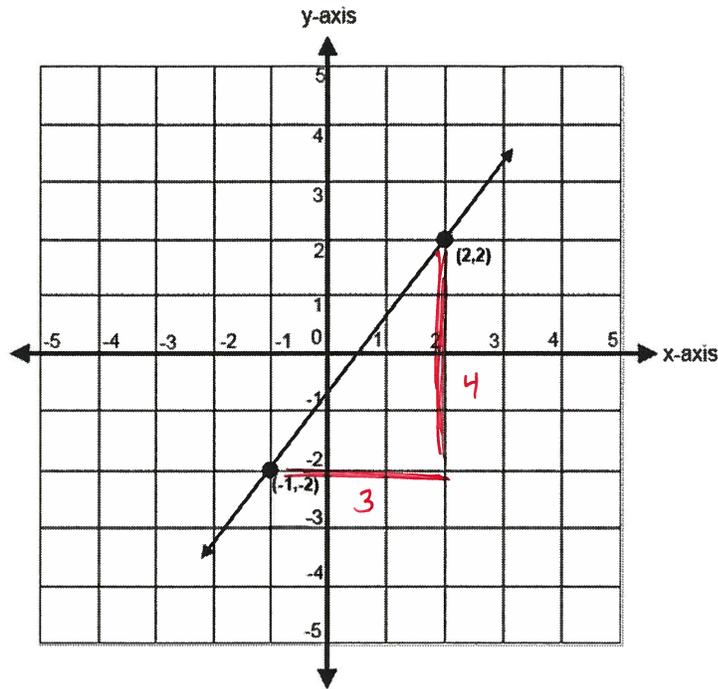
$$2y = 20$$

$$\div 2 \quad \div 2$$

$$y = 10$$

Part 3 – Slope-Point Form $(y-y_1)=m(x-x_1)$

Q3: Write the equation of the line in *Slope Point Form*.



$$m = \frac{\text{rise}}{\text{run}} = \frac{4}{3}$$

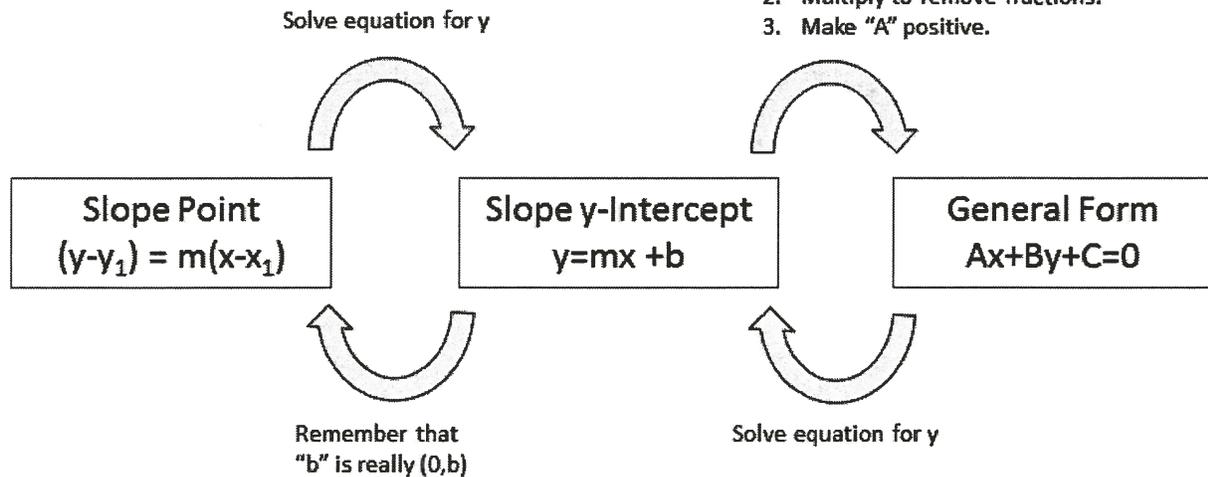
$$(y - y_1) = \frac{4}{3}(x - x_1)$$

Option #1: $(y - 2) = \frac{4}{3}(x - 2)$

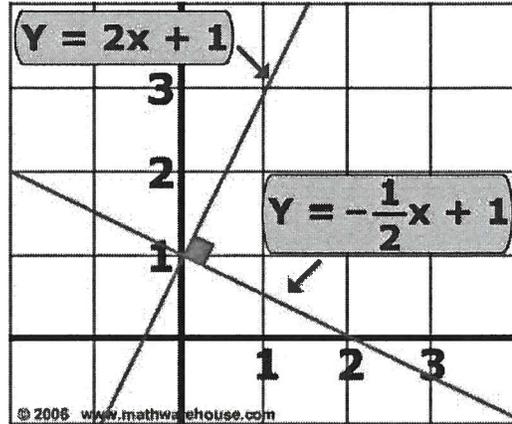
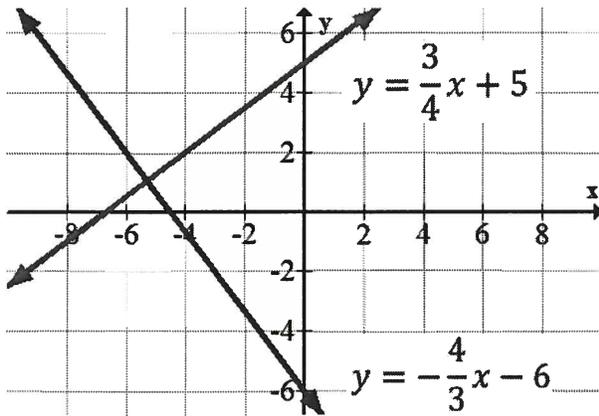
Option #2: $(y - -2) = \frac{4}{3}(x - -1)$
 $(y + 2) = \frac{4}{3}(x + 1)$

Part 4 – Transitioning Forms

1. Bring all variables onto the same side.
2. Multiply to remove fractions.
3. Make "A" positive.



Part 5 – Parallel and Perpendicular



Parallel: Same slope.

Perpendicular: Slope is "negative reciprocal".
 or "Flip and switch the sign"

Part 6 – Word Problems

Q4: Bill decides that every week he is going to put his allowance in his piggy bank. After 5 weeks he has \$93. After 9 weeks he has \$153. How much money did Bill start with?

Money depends on weeks
 y depends on x

so (x, y) is (weeks, money)

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{153 - 93}{9 - 5}$ ← Points $(5, 93)$ and $(9, 153)$
 $x_1 \quad y_1 \quad x_2 \quad y_2$

$m = 15$

↓

$y = mx + b$
 $y = 15x + b$ Use $(5, 93)$
 $93 = 15(5) + b$
 $93 = 75 + b$
 $18 = b$ → $y = 15x + 18$

↓

Started with \$18.