

section 3.2

3.2 L1

given 2 points (x_1, y_1) and (x_2, y_2) the slope between these points is

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{y_1 - y_2}{x_1 - x_2} = \frac{\Delta y}{\Delta x}$$

Horizontal lines: $y = k$; slope: $m = 0$

Vertical lines: $x = k$; no slope

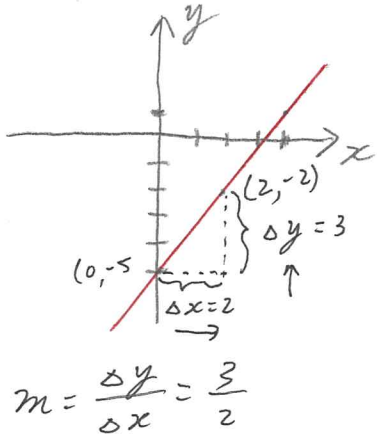
$y = mx + b$ is equation of line in slope-intercept form.
slope: m y -int: b $(0, b)$

$y - y_1 = m(x - x_1)$ is equation of line in point-slope form.
slope: m (x_1, y_1) : a point on this line

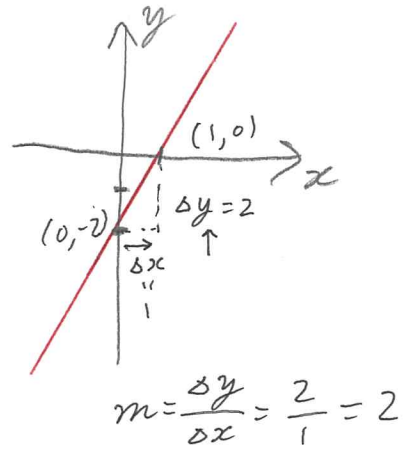
2 lines are parallel ($\parallel$) if their slope are equal
 $m_1 = m_2$

2 lines are perpendicular ($\perp$) if their slope satisfy
 $m_1, m_2 = -1$ or $m_2 = \frac{-1}{m_1}$

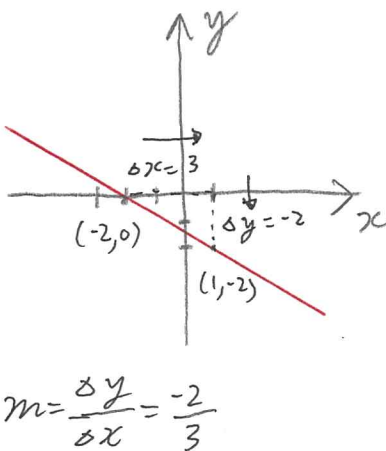
74)



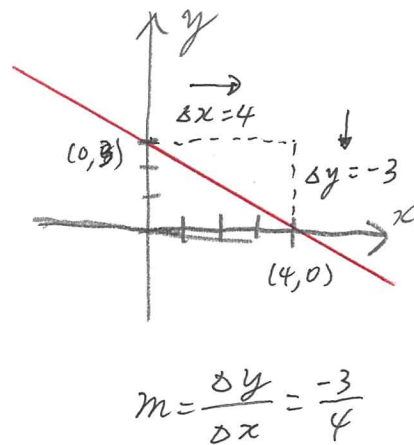
76)



78)



80)



82) $y = -2$ Horizontal
 $m = 0$ line

84) $x = 4$ Vertical
 no slope line

86) $(3, 6), (8, 0)$
 $(x_1, y_1) \quad (x_2, y_2)$

$$m = \frac{(0) - (6)}{(8) - (3)} = \frac{-6}{5}$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

88) $(-2, 4), (3, -1)$

$$m = \frac{(-1) - (4)}{(3) - (-2)} = \frac{-5}{5} = -1$$

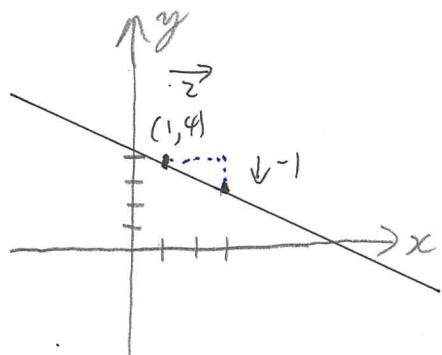
90) $(-2, -1), (6, 5)$

$$m = \frac{(5) - (-1)}{(6) - (-2)} = \frac{6}{8} = \frac{3}{4}$$

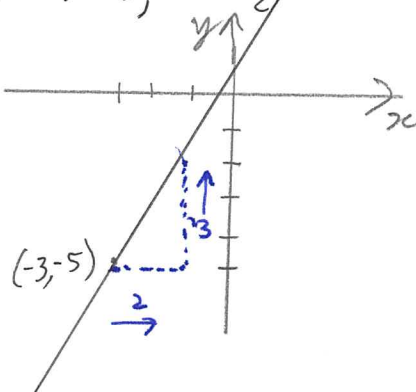
92) $(3, -6), (2, -2)$

$$m = \frac{(-2) - (-6)}{(2) - (3)} = \frac{4}{-1} = -4$$

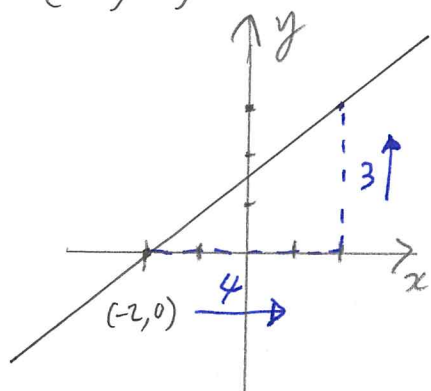
94) $(1, 4); m = -\frac{1}{2}$



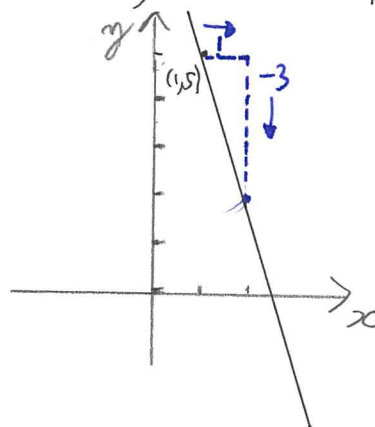
96) $(-3, -5); m = \frac{3}{2}$



98) $x\text{-int: } -2; m = \frac{3}{4}$
 $(-2, 0)$



100) $(1, 5); m = -3 = \frac{-3}{1}$



102) $y = 4x - 10$

slope: $m = 4$ $y\text{-int: } b = -10$ $(0, -10)$

104) $4x + y = 8$

$$\begin{array}{r} -4x \quad -4x \\ 4x + y = 8 \\ \hline y = -4x + 8 \end{array}$$

slope: $m = -4$ $y\text{-int: } b = 8$ $(0, 8)$

106) $8x + 3y = 12$

$$\begin{array}{r} -8x \quad -8x \\ 8x + 3y = 12 \\ \hline 3y = -8x + 12 \\ \hline \frac{3y}{3} = \frac{-8x + 12}{3} \end{array}$$

$y = \frac{-8x + 12}{3}$ slope: $m = \frac{-8}{3}$

$y = \frac{-8x}{3} + \frac{12}{3}$ $y\text{-int: } b = 4$ $(0, 4)$

$y = \frac{-8}{3}x + 4$

$$\begin{aligned}
 108) \quad 7x - 3y &= 9 \\
 -9 + 3y & \quad -9 + 3y \\
 \hline
 7x - 9 &= 3y \\
 \frac{7x - 9}{3} &= \frac{3y}{3} \\
 \frac{7x - 9}{3} &= y \\
 \frac{7x}{3} - \frac{9}{3} &= y \\
 \frac{7}{3}x - 3 &= y
 \end{aligned}$$

$$y = \frac{7}{3}x - 3$$

$$\text{slope: } m = \frac{7}{3}$$

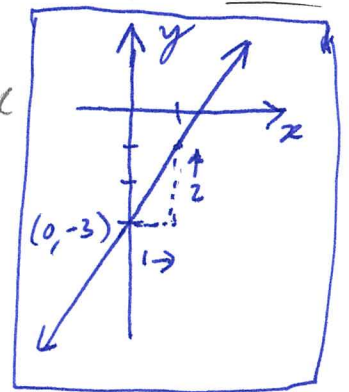
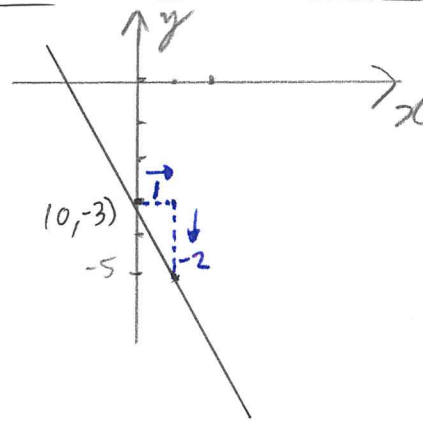
$$y\text{-int: } b = -3 \quad (0, -3)$$

$$110^*) \quad y = 2x - 3$$

$$m = -2 = \frac{-2}{1}$$

$$b = -3; (0, -3)$$

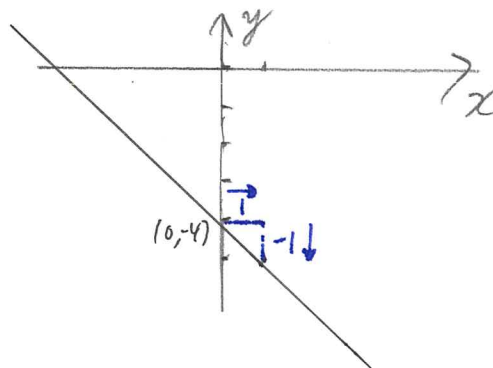
$$\begin{aligned}
 110) \quad y &= 2x - 3 \\
 m &= 2 = \frac{2}{1} \\
 b &= -3 \\
 (0, -3)
 \end{aligned}$$



$$112) \quad y = -x - 4$$

$$m = -1 = \frac{-1}{1}$$

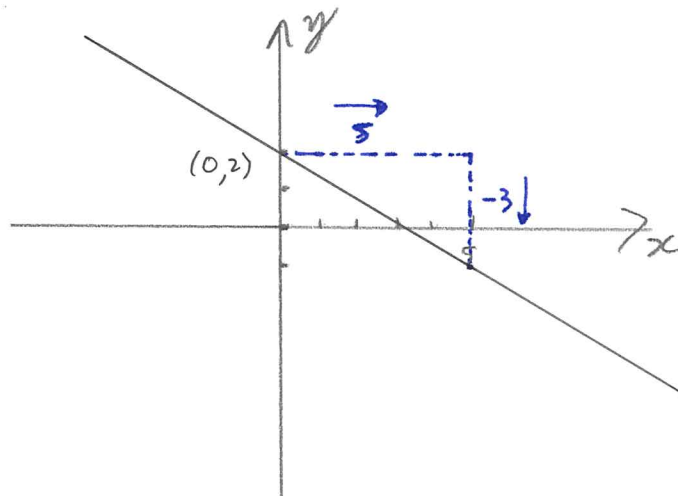
$$b = -4 \quad (0, -4)$$



$$114) \quad y = -\frac{3}{5}x + 2$$

$$m = -\frac{3}{5}$$

$$b = 2 \quad (0, 2)$$



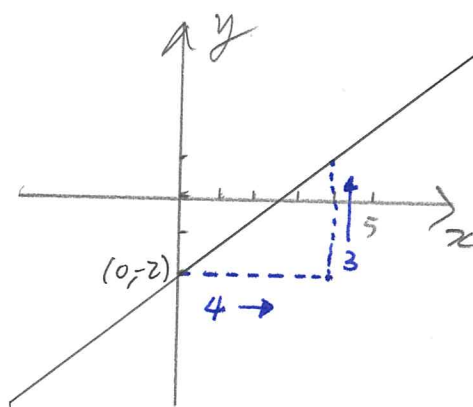
$$\begin{array}{r}
 116) \quad 3x - 4y = 8 \\
 \quad -8 + 4y \quad -8 + 4y \\
 \hline
 \quad 3x - 8 = 4y \\
 \quad \quad 4 \quad \quad 4 \\
 \hline
 \quad \frac{3x - 8}{4} = y \\
 \quad \frac{3x - 8}{4} = y \\
 \quad \frac{3x}{4} - \frac{8}{4} = y \\
 \quad \frac{3}{4}x - 2 = y
 \end{array}$$

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

$$m = \frac{3}{4}$$

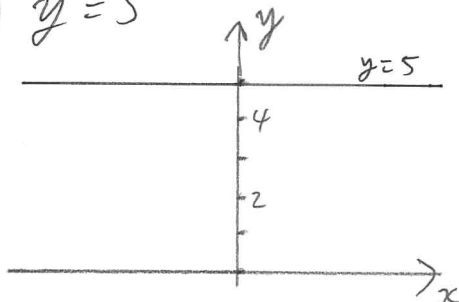
$$b = -2$$

$$(0, -2)$$

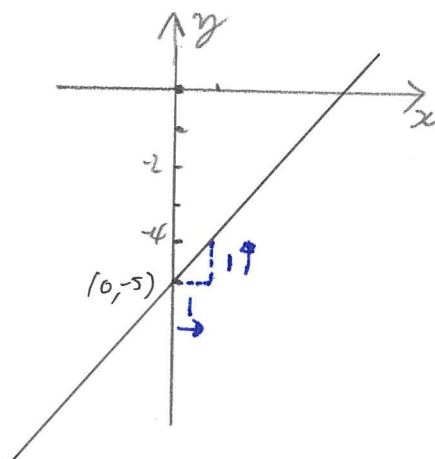


3.2 [5]

$$118) y = 5$$



$$\begin{array}{r}
 120) \quad x - y = 5 \\
 \quad -5 + y \quad -5 + y \\
 \hline
 \quad x - 5 = y \\
 \quad \quad \quad m = 1 = \frac{1}{1} \\
 \quad \quad \quad b = -5 \\
 \quad \quad \quad (0, -5)
 \end{array}$$

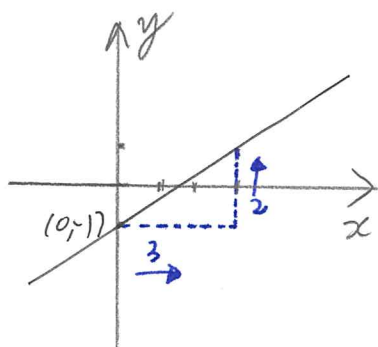


$$122) y = \frac{2}{3}x - 1$$

$$m = \frac{2}{3}$$

$$b = -1$$

$$(0, -1)$$



$$\begin{array}{r}
 124) \quad 2x - 5y = -10 \\
 \quad +10 + 5y \quad +10 + 5y \\
 \hline
 \quad 2x + 10 = 5y \\
 \quad \quad \quad 5 \quad \quad 5
 \end{array}$$

$$\frac{2x + 10}{5} = \frac{5y}{5}$$

$$\frac{2x + 10}{5} = y$$

$$\frac{2x}{5} + \frac{10}{5} = y$$

$$\frac{2}{5}x + 2 = y$$

$$m = \frac{2}{5}$$

$$b = 2$$

$$(0, 2)$$

