

PARALLEL LINES

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$$y = -5x - 7 \text{ is parallel to } y = -5x + 13$$

$$m_1 = m_2 = -5$$

$$y = 5x + 15 \text{ is parallel to } y = 5x + 24$$

$$m_1 = m_2 = 5$$

$$y = \frac{1}{5}x + 21 \text{ is parallel to } y = \frac{1}{5}x + 9$$

$$m_1 = m_2 = \frac{1}{5}$$

$$y = -\frac{1}{5}x + 15 \text{ is parallel to } y = -\frac{1}{5}x$$

$$m_1 = m_2 = -\frac{1}{5}$$

PERPENDICULAR

$$\begin{cases} y = -5x - 7 \perp y = \frac{1}{5}x + 9 \text{ and } y = \frac{1}{5}x + 21 \\ y = -5x + 3 \perp y = \frac{1}{5}x + 21 \text{ and } y = \frac{1}{5}x + 21 \end{cases}$$

$$m_1, m_2 = -1$$

$$-5\left(\frac{1}{5}\right) = -\frac{5}{5} = -1$$

$$\begin{cases} y = 5x + 15 \perp y = -\frac{1}{5}x + 15 \text{ and } y = -\frac{1}{5}x \\ m_1, m_2 = -1 \\ 5\left(-\frac{1}{5}\right) = -1 \end{cases}$$

$$\begin{cases} y = 5x + 24 \perp y = -\frac{1}{5}x + 15 \text{ and } y = -\frac{1}{5}x \\ m_1, m_2 = -1 \end{cases}$$

$$20.) y = -\frac{4}{3}x + 1 \quad m_{||} = -\frac{4}{3} \quad D(x_1, y_1) (-5, -3)$$

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

$$3 \times y + 3 = -\frac{4}{3} \overset{\times 3}{(x + 5)}$$

$$3(y + 3) = -4(x + 5)$$

$$3y + 9 = -4x - 20$$

$$+4x \quad +4x$$

$$4x + 3y + 9 = -20$$

$$-9 \quad -9$$

$$\boxed{4x + 3y = -29}$$

Standard Form

$$ii) y = -\frac{4}{3}x + 1 \quad m_{\perp} = \frac{3}{4} \quad (-5, -3)$$

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

$$\textcircled{4} \times y + 3 = \frac{3}{4} \textcircled{\times 4} (x + 5)$$

$$4(y + 3) = 3(x + 5)$$

$$4y + 12 = 3x + 15$$

$$-4y \quad -4y$$

$$12 = 3x - 4y + 15$$

$$12 = 3x - 4y + 15$$

$$-3 = 3x - 4y$$

$$\boxed{3x - 4y = -3}$$

Standard Form

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21a) $(1, -2)$ a) \parallel to $y = 2x + 3$

$$m = 2 \therefore m_{\parallel} = 2$$

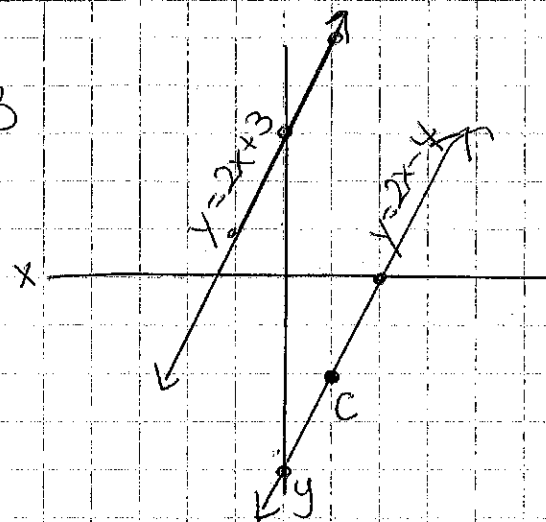
$$y - y_1 = m(x - x_1)$$

$$y + 2 = 2(x - 1)$$

$$y + 2 = 2x - 2$$

$$\boxed{y = 2x - 4}$$

SLOPE yint form



21 b) $(1, -2)$ \perp to $y = 2x + 3$

$$m = 2 \therefore m_{\perp} = -\frac{1}{2}$$

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

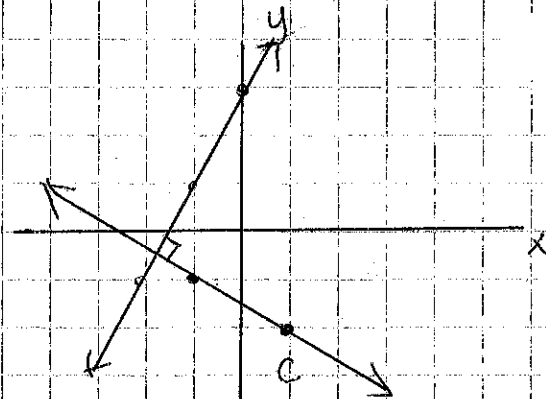
$$y + 2 = -\frac{1}{2}(x - 1)$$

$$2(y + 2) = -1(x - 1)$$

$$2y + 4 = -x + 1$$

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

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



3a) xint 4 is the pt (4,0)

page 374 parallel to $y = \frac{3}{5}x - 7$ so $m = \frac{3}{5}$ $m_{||} = \frac{3}{5}$

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

$$\text{so } y - 0 = \frac{3}{5}(x - 4)$$

$$5(y - 0) = 3(x - 4)$$

$$\frac{5y}{5} = \frac{3x - 12}{5}$$

$$y = \frac{3}{5}x - \frac{12}{5} \quad \text{slope int form}$$

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- #4 a) standard form
- b) general form
- c) slope y intercept form
- d) Point-Slope form

#6 a) $4x + 3y - 36 = 0$

b) $2x - y - 7 = 0$

c) $2x + y - 6 = 0$

d) $5x - y - 1 = 0$

- #8 a) i) coefficient of x is not positive
ii) Ditto! x's, then y's
iii) No fractions allowed!
iv) wrong order $9x + 5y - 20 = 0$