Algebra 1 | Thursday 1-3-13 | Class Notes

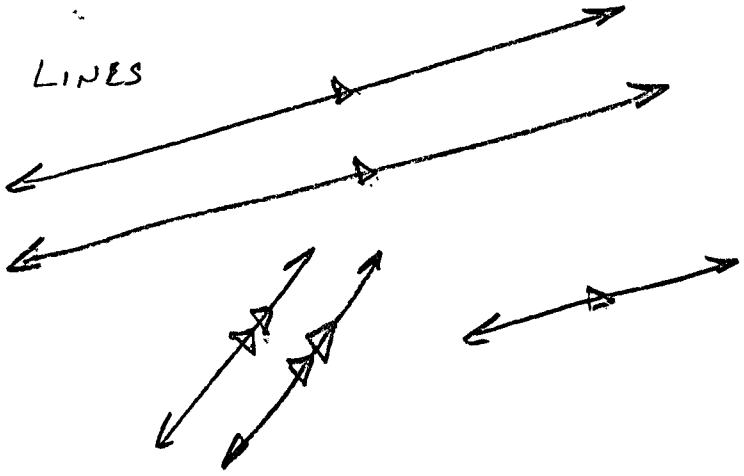
Ch 4-9 Slopes of Parallel and Perpendicular Lines

CC# A1.27

$m_{\parallel}$ = same slope

$m_{\perp}$ = slopes that are opposite reciprocals
(sign) $\left(\frac{a}{b}, \frac{b}{a}\right)$
"flip"

PARALLEL LINES

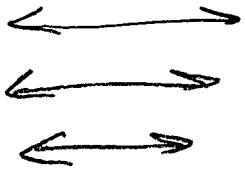


SLOPES OF // LINES

PARALLEL LINES HAVE THE SAME SLOPE

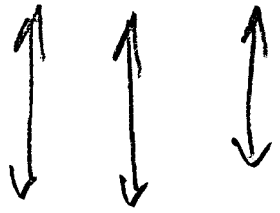
HORIZONTAL

$m = 0$



VERTICAL

m = UNDEFINED



Ex B
Pg 294

(A) $y = 3x + 2$ $\quad m = 3$

(B) $y = -\frac{1}{2}x + 4$ $\quad m = -\frac{1}{2}$

(C) $x + 2y = -4$ $\quad m = -\frac{1}{2}$

$\parallel$

(Q) $y - 5 = 3(x - 1)$ $\quad m = 3$

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

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

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

$y = mx + b$

(Q) $y - 5 = 3x - 3$

$+5 \qquad +5$

$y = 3x + 2$

$y = mx + b$

$y = 2x + 1$

$y = 2x - 6$ //

$3x + y = -2 \Rightarrow y = -3x - 2$ //

$3x + y = -6 \Rightarrow y = -3x - 6$

Ex1 Pg293 $y = \frac{4}{3}x + 3$.

$m=0$ $y = 2$

$y = \frac{4}{3}x - 5$

$m=0$ $y = -3$

(A) // (B) // (C) // (D)

EOL

(11) through $(5, -3)$, x, y // to $y = \frac{-3}{5}x + 3$

$m_{//} = \frac{-3}{5}$

$m_{\perp} = \frac{5}{3}$

IF you NEED PERPENDICULAR LINE

$y = mx + b$

$-3 = \frac{-3}{5}(5) + b$

$+3 \quad +3$

$0 = b$

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

x, y

① through $(3, -1)$, // to $y = -x$

$m_{//} = -1$

$y = mx + b$

tip: $y = -x + 0$

$y = -\frac{1}{1}x + 0$

$y = mx + b$

$-1 = -1 \cdot 3 + b$

$-1 = -3 + b$

$+3 \quad +3$

$2 = b$

$y = -1x + 2$

$m_{\perp} = 1$

EOS

if you needed perpendicular line

Ex 3 Pg 295

(A) $x = -2$ ⊥

(B) $y = 1$ ⊥

(C) $y = -4x$ ∥

(D) $y + 2 = \frac{1}{4}(x + 1)$ ∥

$y + 2 = \frac{1}{4}x + \frac{1}{4}$

$y = \frac{1}{4}x - \frac{7}{4}$

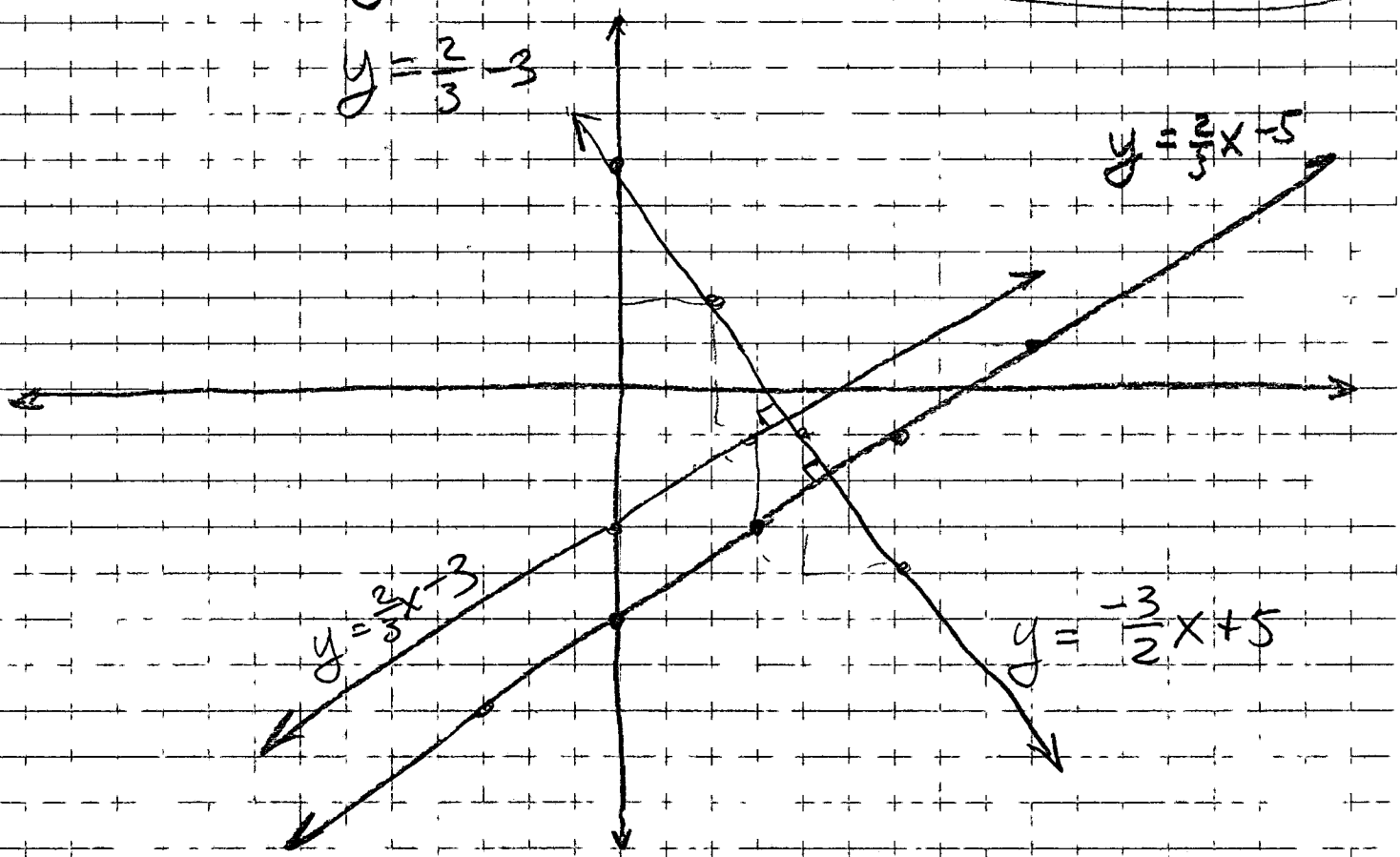
↑

↕ Vert

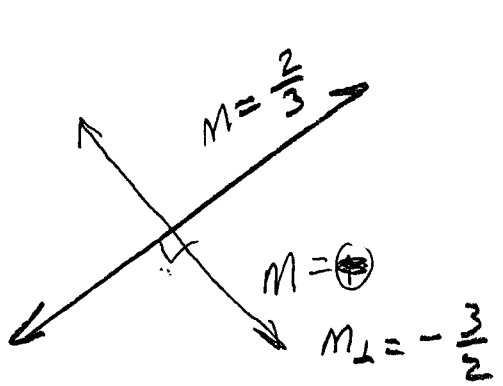
↔ Hor's

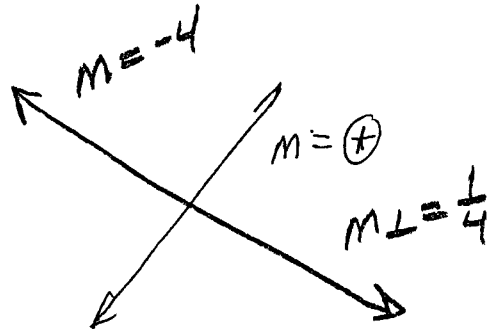
$m = \frac{2}{3}$ $\quad m_{\perp} = -\frac{3}{2}$

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



Slopes of Perpendicular Lines





Slopes are opposite reciprocals

$m_{\parallel}$ (same)

$m_\perp$ (opp recip.)