Principles of MATH 10 REVIEW of LINES

Key Concepts: slope, intercepts (x-intercept and y-intercept), coordinate system, quadrants, slope formula, graphing from a table, graphing from slope and y-intercept, finding the slope of a line, standard form, slope y-intercept form, parallel and perpendicular lines

WARM-UP You should be able to answer the following quickly:

Part A	Part B
What is the slope of: $y = 4x - 3$? 4	What is the slope of: $y = 7x - 3$? 7
What is the y-intercept of $y = 4x - 3$? -3	What is the y-intercept of $y = 4x + 9$? 9
What is the slope of the line parallel to $y = \frac{2}{3}x + 8$? $\frac{2}{3}$	What is the slope of the line parallel to $y = \frac{-7}{3}x + 8$? $\frac{-7}{3}$
What is the slope of the line perpendicular to $y = \frac{2}{3}x + 8$? $\frac{-3}{2}$	What is the slope of the line perpendicular to $y = \frac{-3}{5}x + 8$? $\frac{5}{3}$
Find the slope of the line through (2,5) and (11,5)? $m = \frac{5-5}{11-2} = 0$	Find the slope of the line through (1,1) and (13,5)? $m = \frac{5-1}{13-1} = \frac{4}{12} = \frac{1}{3}$
What is the equation of the line with slope 7 and y-intercept 3? $y = 7x + 3$	What is the equation of the line with slope 3 and y-intercept 5? $y = 3x + 5$
What is the x-intercept of $3x + 5y = 12$? $3x + 5(0) = 12$, $x = 4$	What is the x-intercept of $4x + 3y = 12$? $4x + 3(0) = 12$, x-int = 3
What is the y-intercept of $3x + 5y = 20$? $3(0) + 5y = 20$, y-int = 4	What is the y-intercept of $5x + 3y = 15$? $5(0) + 3y = 15$, y-int = 5
What is the slope of the line y=3? slope = 0 (horizontal line)	What is the slope of the line x=3? slope = undefined (vertical line)
What is the y-intercept of the line $y = \frac{2}{3}x$? y-int = 0	What is the y-intercept of the line $y = -\frac{2}{3}x$? y-int = 0

A. Change to general form:

$y = \frac{2}{3}x - 7$ → $2x - 3y - 21 = 0$

$\frac{3}{5}y = \frac{1}{5}x + 2$ → $x - 3y + 10 = 0$

$-x + 3y = \frac{2}{3}$ → $3x - 9y + 2 = 0$

B. Change to slope y-intercept form

$2x + y = -4$ → $y = -2x - 4$

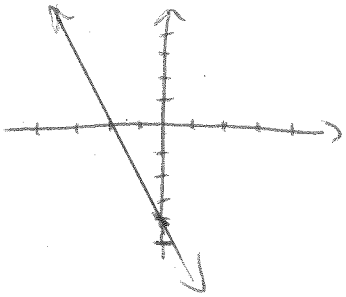
$3x - 2y = 6$ → $y = \frac{3}{2}x - 3$

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

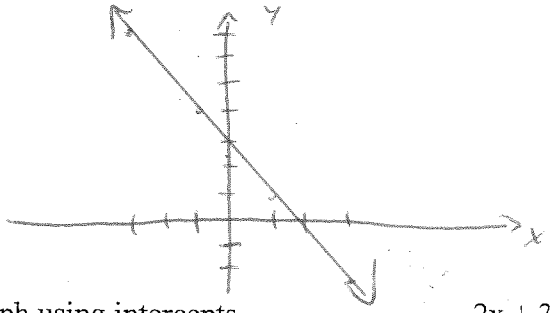
C. Graph using the slope and intercept: $2x + y = -4$ → $y = -2x - 4$

slope $= -2$

y-int $= -4$



D. Make a table and graph $3x + 2y = 5$ → $y = \frac{-3}{2}x + \frac{5}{2}$



x	y
-3	7
-1	4
0	5/2
1	1
3	-2

E. Graph using intercepts $2x + 3y = 6$

↳ x-int $= 3$ → $(3, 0)$

↳ y-int $= 2$ → $(0, 2)$