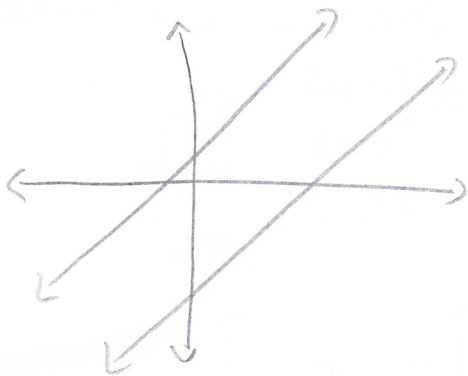## PARALLEL LINES



LINES WITH THE SAME SLOPE.

Ex) GRAPH THE LINE THROUGH $(-1, 3)$ THAT IS PARALLEL TO THE LINE WITH EQUATION $x + 4y = -4$

$x + 4y = -4$
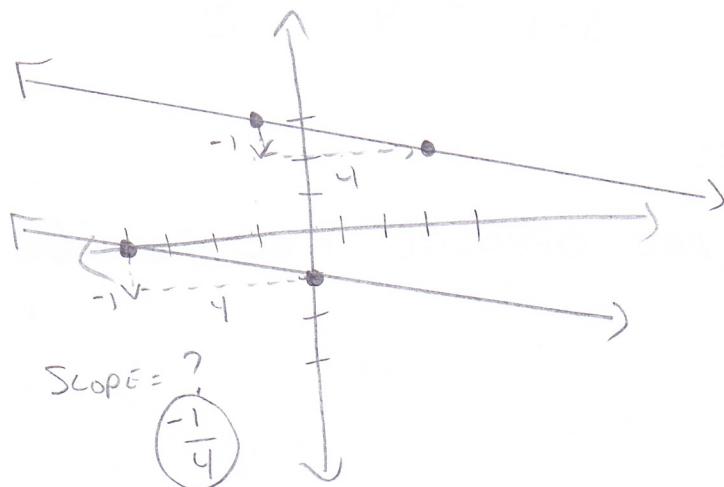
X-INT $\Rightarrow$ $x + 4(0) = -4$
$x = -4$ $(-4, 0)$

Y-INT $\Rightarrow$ $0 + 4y = -4$
$$\frac{4y}{4} = \frac{-4}{4}$$
$y = -1$ $(0, -1)$



SLOPE = ?
$\boxed{\dfrac{-1}{4}}$

LOOK AT    PERPENDICULAR  LINES.
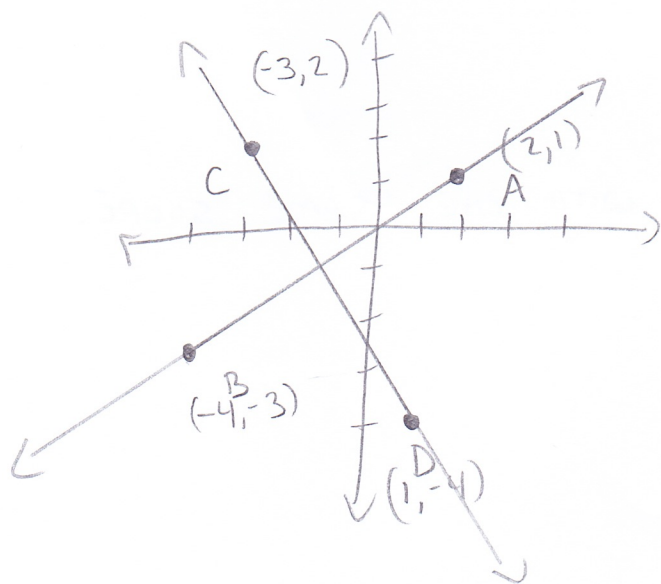


SLOPE OF
$\overleftrightarrow{AB}$

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

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

SLOPE OF
$\overleftrightarrow{CD}$

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

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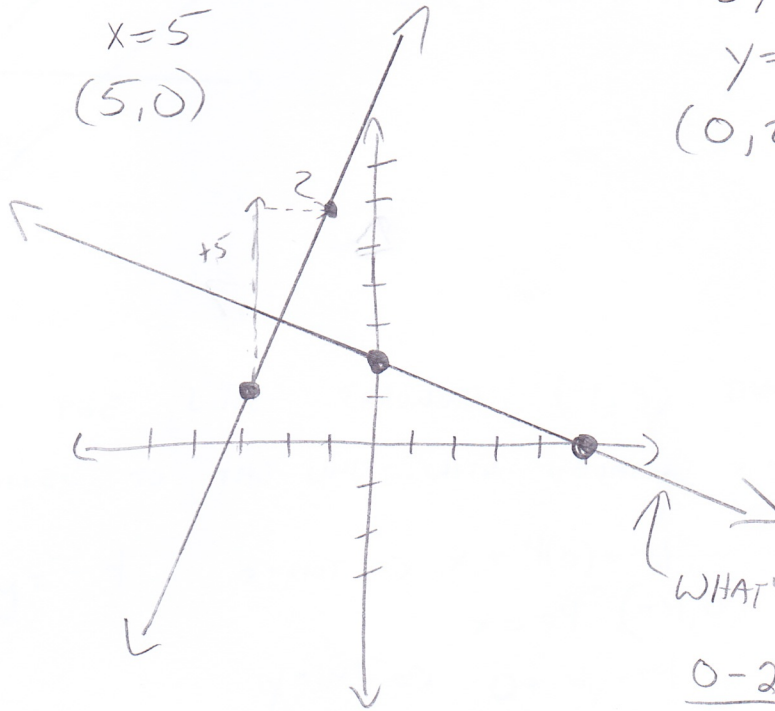
PERPENDICULAR   LINES

SLOPES  ARE  OPPOSITE  RECIPROCALS

Ex 2 | GRAPH LINE THROUGH $(-3,1)$
THAT IS PERPENDICULAR TO THE
LINE w/ EQUATION $2x + 5y = 10$

X-INT $\Rightarrow$ $2x + 5(0) = 10$        Y-INT $\Rightarrow$ $2(0) + 5y = 10$
        $2x = 10$                                $5y = 10$
        $x = 5$                                   $y = 2$
        $(5, 0)$                                  $(0, 2)$



WHAT'S THE SLOPE?

$$\frac{0-2}{5-0} = \frac{-2}{5}$$
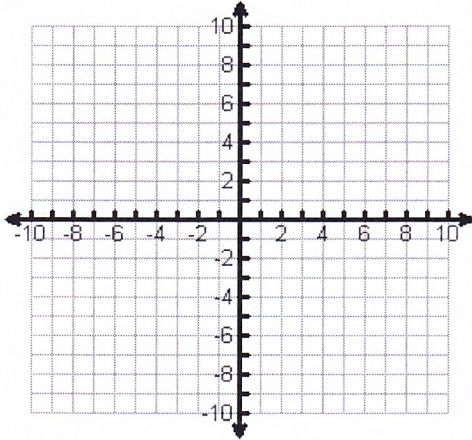
SO LINE $\perp \Rightarrow$ SLOPE $= \frac{5}{2}$
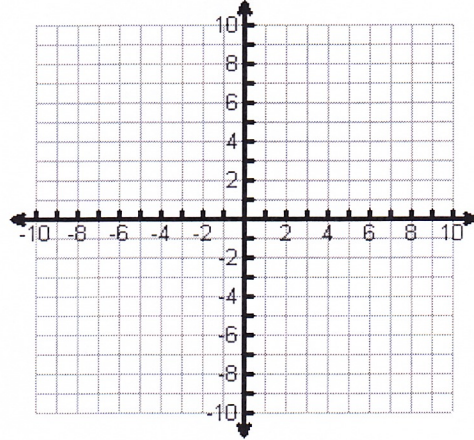
HW:

Topics of Advanced Algebra                    Name_____
2.3 Exit Slip                                 Date _____ Period _____
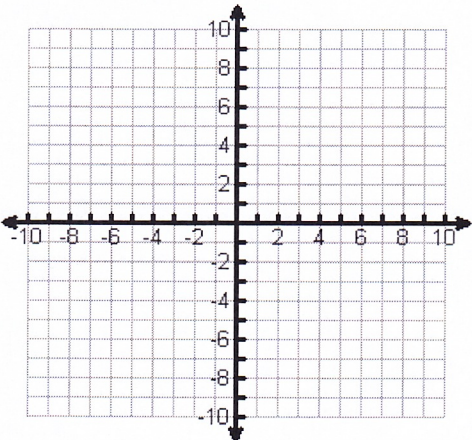
1)  Graph the line through (1, -2)        2)  Graph the line through (2, 1)
    that is parallel to the line with         that is perpendicular to the line
    the equation x – y = -2.                  with the equation 2x – 3y = 3.