

1. State the x-intercept and y-intercept as points.

$$3x - 4y = -24$$

X-INT ( $y=0$ ):

$$\frac{3x}{3} = \frac{-24}{3}$$

$$x = -8 \quad (-8, 0)$$

Y-INT ( $x=0$ ):

$$-4y = \frac{-24}{-4}$$

$$y = 6 \quad (0, 6)$$

2. Find the slope of the line passing through:

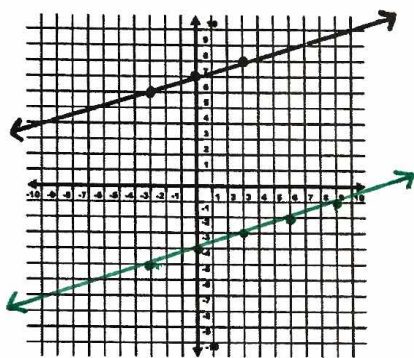
$(-2, 12)$  and  $(6, 0)$   
 $x_1, y_1$        $x_2, y_2$

$$\frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{0 - 12}{6 - (-2)} = \frac{-12}{8} = \boxed{-\frac{3}{2}}$$

3. Draw a line parallel to the one provided, passing through  $(6, -2)$ . Write each equation in slope-intercept form.

PARALLEL = SAME SLOPE

SLOPE:  $\frac{1}{3}$



$$y = \frac{1}{3}x + 7$$

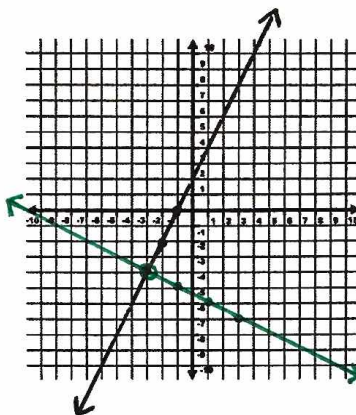
$$y = \frac{1}{3}x - 4$$

4. Draw a line perpendicular to the one provided, passing through  $(-3, -4)$ . Write each equation in slope-intercept form.

PERPENDICULAR = SLOPES ARE OPPOSITE RECIPROALS

SLOPE:  $2$

$\perp$  SLOPE:  $-\frac{1}{2}$



$$y = 2x + 2$$

$$y = -\frac{1}{2}x - 5\frac{1}{2}$$

5. Write an equation in slope-intercept form for a line with slope  $\frac{2}{3}$  that contains the point  $(-6, 18)$ .

$$y = mx + b$$

POINT-SLOPE FORM:

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

$$y - 18 = \frac{2}{3}(x + 6)$$

$$y - 18 = \frac{2}{3}x + 4$$

$$y = \frac{2}{3}x + 22$$

6. Write an equation in slope-intercept form for a line containing  $(8, -1)$  and  $(2, -4)$ .

$x_1, y_1$        $x_2, y_2$

$$\frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-4 - (-1)}{2 - 8} = \frac{-3}{-6} = \frac{1}{2}$$

$$y - (-1) = \frac{1}{2}(x - 8)$$

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

$$y = \frac{1}{2}x - 5$$

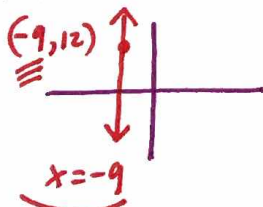
7. Write the equation of a line with an undefined slope that contains  $(-9, 12)$ .

VERTICAL LINE

$$x = \#$$

$$x = -9$$

VISUALIZE:



8. Write an equation in slope-intercept form for the line containing  $(-3, 9)$  and perpendicular to:  $y = \frac{1}{3}x - 5$

$x_1, y_1$

PERPENDICULAR = SLOPES ARE OPPOSITE RECIPROALS

$\perp$  SLOPE:  $3$

$$y - 9 = 3(x + 3)$$

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

$$y = 3x + 18$$