

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

$$5x - 2y = 30$$

$$x\text{-int } (y=0):$$

$$\frac{5}{5}x = \frac{30}{5}$$

$$x = 6 \quad \boxed{(6, 0)}$$

$$y\text{-int } (x=0):$$

$$-\frac{2}{2}y = \frac{30}{-2}$$

$$y = -15 \quad \boxed{(0, -15)}$$

2. Find the slope of the line passing through:

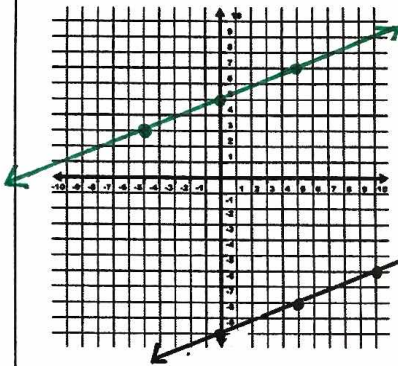
$$(-10, 5) \text{ and } (8, -1)$$

$$x_1, y_1 \quad x_2, y_2$$

$$\frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 - 5}{8 - (-10)} = \frac{-6}{18} = \boxed{-\frac{1}{3}}$$

3. Draw a line parallel to the one provided, passing through $(-5, 3)$. Write each equation in slope-intercept form.

PARALLEL = SAME SLOPE



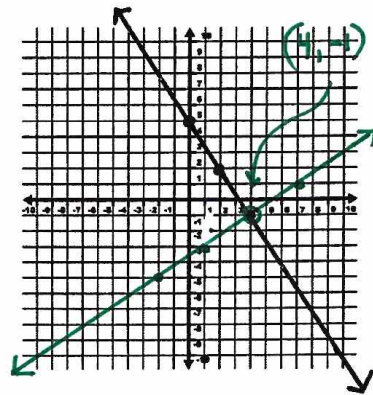
$$\text{SLOPE: } \frac{2}{5}$$

$$y = \frac{2}{5}x + 5$$

$$y = \frac{2}{5}x - 10$$

4. Draw a line perpendicular to the one provided, passing through $(4, -1)$. Write each equation in slope-intercept form.

PERPENDICULAR = SLOPES ARE OPPOSITE RECIPROCAL



$$\text{SLOPE: } -\frac{3}{2}$$

$$\perp \text{ SLOPE: } \frac{2}{3}$$

$$y = -\frac{3}{2}x + 5$$

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

5. Write an equation in slope-intercept form for a line with slope $\frac{3}{2}$ that contains the point $(24, -12)$.

$$y = mx + b$$

POINT-SLOPE FORM:

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

$$y - (-12) = \frac{3}{2}(x - 24)$$

$$y + 12 = \frac{3}{2}x - 36$$

$$y = \frac{3}{2}x - 48$$

6. Write an equation in slope-intercept form for a line containing $(5, -6)$ and $(-7, 2)$.

$$\frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - (-6)}{-7 - 5} = \frac{8}{-12} = -\frac{2}{3}$$

$$y - (-6) = -\frac{2}{3}(x - 5)$$

$$y + 6 = -\frac{2}{3}x + \frac{10}{3}$$

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

$$\frac{10}{3} - 6 = \frac{10}{3} - \frac{18}{3} = -\frac{8}{3} = -2\frac{2}{3}$$

7. Write an equation in slope-intercept form for the line containing $(6, -9)$ and parallel to: $y = \frac{2}{3}x + 8$

PARALLEL = SAME SLOPE

$$\text{SLOPE: } -\frac{2}{3}$$

$$y - (-9) = -\frac{2}{3}(x - 6)$$

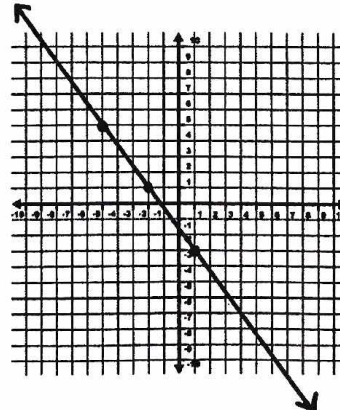
$$y + 9 = -\frac{2}{3}x + 4$$

$$y = -\frac{2}{3}x - 5$$

8. Write the equation of the line graphed below in point-slope form.

POINT-SLOPE FORM:

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



$$\text{POINT: } (-5, 5)$$

$$\text{SLOPE: } -\frac{4}{3}$$

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

OR

$$y - 1 = -\frac{4}{3}(x + 2)$$

OR

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

OR