Determining slope (positive, negative, zero, undefined) and finding x and y-intercepts.

Slope Intercept Form

$y = mx + b;$ m = slope, b = y-intercept

Zero Slope $y = 2$ *(Horizontal Lines)*

No x-intercept. All ordered pairs on this line have a y value of 2. For example (1,2), (-5,2).

Undefined Slope $x = -4($ *(Vertical Lines)*

No y-intercept. All ordered pairs on this line have x value of -4. For example (-4, 1), (-4,-8).

x- and y-intercepts

The x-intercept is the ordered pair (x, 0). The y-intercept is the ordered pair (0, y).
Steps to finding intercepts . . .
1. Substitute a zero "0" in for the x – variable.
2. Solving the remaining equation will give you the y - intercept.
3. Substitute a zero "0" in for the y – variable.
4. Solving the remaining equation will give you the x - intercept.

For example, given the equation $2x + 5y = 10$, to find the x-intercept substitute a "0" in for the y and solve the remaining equation for x.

$x-intercept$ $2x + 5(0) = 10$ $y-intercept$ $2(0) + 5y = 10$
$2x = 10$ $5y = 10$
$x = 5$ $y = 2$

So, the x-intercept for this equation is (5,0) and the y-intercept is (0, 2).

Example #1

What is the slope, x-intercept, and y-intercept of the graph $4x + 3y = 9$?

Slope = _____   x-intercept = _____   y-intercept = _____

Example #2

What is the y-intercept of the graph of $4y = 2x - 8$?