Lesson 4 – General Form Ax+By+C=0

x-intercept- the x coordinate of the point when a line or curve crosses the x-axis; the value of x when y=0.
y-intercept – the y coordinate of the point when a line or curve crosses the y-axis; the value of y when x=0

<u>Example 1</u>:
For the linear equation 2x+3y-12=0,
   a) state the x-intercept

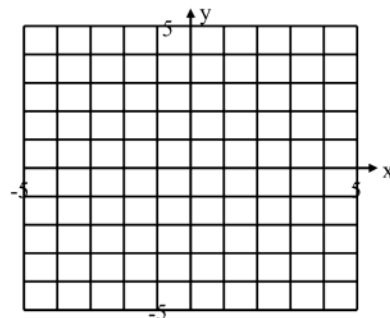Therefore, the coordinates for the x-intercept is (,)
   b) state the y-intercept

Therefore, the coordinates for the y-intercept is (,)
   c) use the intercepts to graph the line.

   d) What is the slope of this graph?

   e) Determine the equation of the line using slope-intercept form, that is, **y-mx+b**

<u>Example 2</u>:
Change the equation from standard from 2x + 3y -12 = 0 to slope-intercept from algebraically.

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Example 3:
Parents of the cheerleading squad rent a hall. They arrange a talent show as a fundraiser. The relationship between the number of tickets sold, x, and the profit, y, in dollars, may be represented by the equation 24x-2y-1680=0.
   a) What is the slope of the line?
   b) Identify the y-intercept.
   c) How many tickets must the parents sell to reach the break-even point.

Example 4:
Rewrite the equation each equation in general form, Ax+By+C=0. What is the x and y intercepts of these lines?
   a) y=-(2/3)x +6   b) y = (3/4)x - 2

Special Cases of the equation Ax+By+C=0, when one or more of A, B, C are 0.
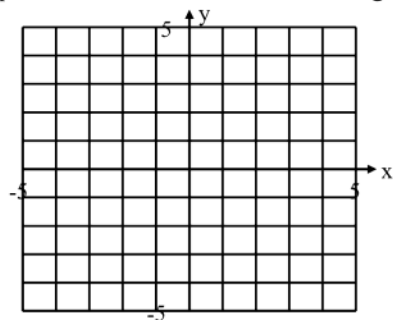**Ax+By=0 is a line that passes through the origin (0,0)**
By+C=0 is a horizontal line.
Ax+C=0 is a vertical line.

Example 5:
Describe each of the following lines. Identify the intercepts, then state the domain and range.
   a) $x - 3y = 0$

   b) $2y + 4 = 0$

   c) $3x - 12 = 0$

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<u>Example 6:</u>

Brook wants to save $336 to decorate her bedroom. She has two part-time jobs. On weekends, she works as a snowboard instructor and earns $12 per hour. On weeknights, she earns $16 per hour working as a high-school tutor.

    a) Write an equation to represent the number of house Brooke needs to work as a snowboard instructor, S, and as a tutor, T.

    b) What is the S-intercept of a graph of the equation? What does the S-intercept represent?

    c) What would the T-intercept be? What does it represent?

    d) Suppose Brooke works 8h as a snowboard instructor. How many hours will she need to work as a tutor?

Assignment: Why does a poor man drink coffee + Pg.

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