Notes
Algebra Section 4.5
Pages 244-250

Goal: "You will graph linear equations using slope-intercept form"

Slope-Intercept Form:

m is the _____. It is the _____ of x

b is the _____. It is always being _____

or _____.

Writing equations in slope-intercept form:
Example:

$$2x + 4y = 8$$

Isolate y:

Determine m and b

$m=$ $b=$

Write the following equation in slope-intercept form if necessary.
Then identify the slope and the y-intercept.

1) $y = 3x + 4$ 2) $3x + y = 2$

3) $y = 5x - 3$ 4) $3x - 3y = 12$

5) $x + 4y = 6$ 6) $x + 3y = 9$

To Graph a Line in Slope-Intercept Form:

1) Make sure the _____ is written in _____ _____ form.

2) Identify _____ and _____. Be sure slope is written as a _____ so you can identify the _____ and _____. Notice if the _____ is positive or negative.

3) Plot the _____. Always rise.

4) Run to the _____ if the slope is _____. Run to the _____ if the slope is _____.

5) Plot _____ points and connect with a _____.

Graph using slope – intercept form:
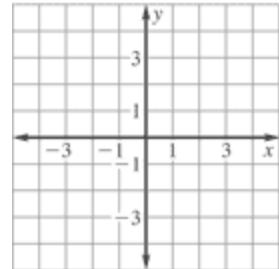Example:

$$2x + y = 3$$

Step 1: Put in slope-intercept form:

Step 2: Identify the *m* and *b*.

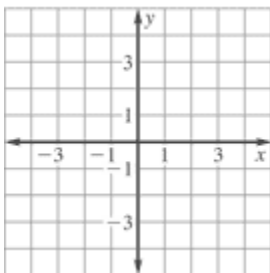Step 3: Plot the *y*-intercept and rise.

Step 4: Run right if + and left if -.
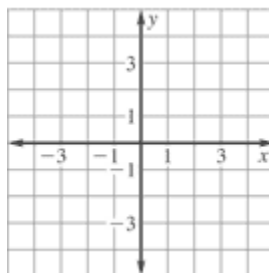
Step 5: Plot several points and connect.

Try These:

Ex: $x + 2y = 4$ **Ex:** $y = -2x + 5$

Word Problem:

1) A violin teacher charges a one-time sheet-music fee of $20 for adults and no fee for children. The charge per hour for both is $20.

a) Write two equations to represent each situation.

b) How will these two graphs be related?

Special Slopes:

Parallel Lines: They have the same _____. If two lines are _____ they are

_____ or _____ at the same _____, and therefore will never

_____, making them _____ _____.

To determine if two lines are parallel: Find the slope of each line using the formula $\frac{y_2 - y_1}{x_2 - x_1}$.

Line A passes through the points $(-1, -1)$ and $(2, 0)$
Line B passes through the points $(0, -3)$ and $(5, -1)$
Line C passes through the points $(-2, -5)$ and $(4, -3)$

Which two lines, if any, are parallel?

Decide if the given lines are parallel. State why or why not.

Ex: $y = 3x + 7$
$2y - 6x = 8$

Ex: $y = \frac{1}{2}x + 4$
$2x - 4y = 16$