

Lesson 5: Slope of a Line

$$\text{Rate of change} = \frac{\text{change in } y}{\text{change in } x}$$

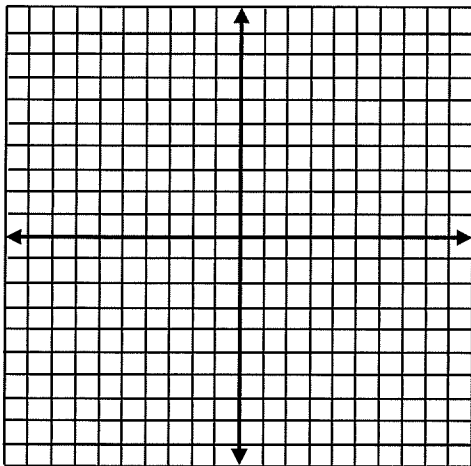
x is the _____ variable, and y is the _____ variable.

Use the table to find the rate of change. Explain the meaning of this ratio.

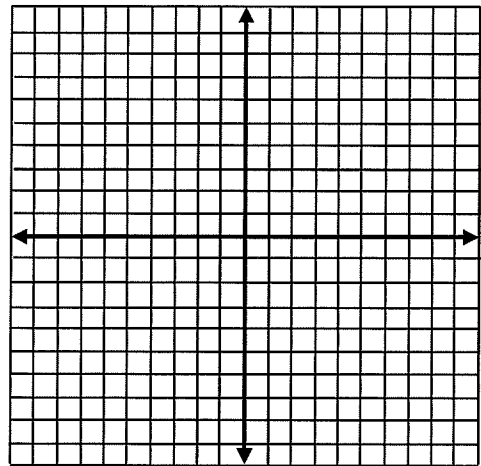
Number of Floor Tiles	Area of Tiled Surface (in^2)
x	y
3	48
6	96
9	144

Graph the equations by creating a table of values

$$y = 2 + 2x$$



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



Which line is steeper? _____

_____ describes the steepness of a line. It tells how fast the value of y is changing compared with x . The change in the y direction is called the _____ and the change in the x direction is called the _____.

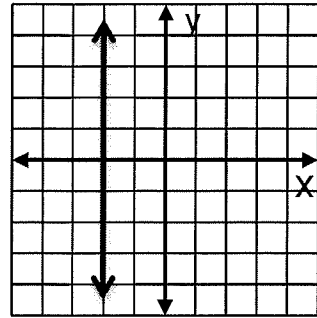
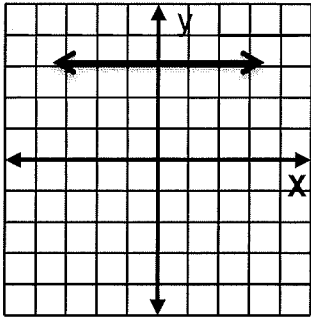
SLOPE FORMULA!!

$m = \underline{\hspace{2cm}}$ OR $m = \underline{\hspace{2cm}}$

Lesson 6: Vertical & Horizontal Lines

Recall, the slope formula:

1. Find the slope of the line that contains the points $(-2, 5)$ and $(3, -5)$.
2. Find the slopes of the lines below:



Important to Note:

- All _____ lines have _____ slope or _____ slope.
- All _____ lines have _____ slope.

Definitions:

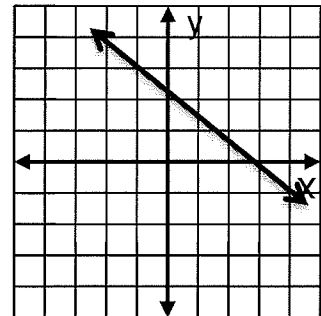
y – intercept: the ___ - coordinate of the point at which the line crosses the _____.

x – intercept: the ___ - coordinate of the point at which the line crosses the _____.

What are the x and y-intercepts of the following graph?

x-intercept: _____

y-intercept: _____



Lesson 7: Slope-Intercept Form of a Line

Recall: The slope of a line tells us how _____ the line is.

The y-intercept of a line is where the line crosses the _____.

Slope-Intercept Form

$$y = mx + b$$

where $m =$ _____ and $b =$ _____

Examples: Tell the slope and y-intercept of each line.

1) $y = -2x + 3$

2) $y = x - 2$

3) $y = \frac{1}{2}x + 6$

4) $y = 5 - x$

5) $y = 4 - 3x$

6) $y = 2x$

**The equations MUST SAY _____ before you can tell the slope and y-intercept!!
You must get _____ alone for your line to be in slope-intercept form.**

Put each equation in slope-intercept form. Then state the slope and y-intercept.

1) $x + y = 8$

2) $3y = 9x$

3) $y - 2x = 5$

4) $4x + 8y = 16$

5) $-3x - y = 2$

6) $9x + 3y = 0$

7) $15x + 3y = 12$

8) $2y + x = 8$

Lesson 9: Writing Equations of Lines

SLOPE-INTERCEPT FORM of a line _____ = _____ + _____

Find the slope and y-intercept of:

$$4x + 3y = 6$$

$$-2y + 8 = 4x$$

Now let's say we were given the slope and the y-intercept. How would we write the equation?

Slope = -3, y intercept 4

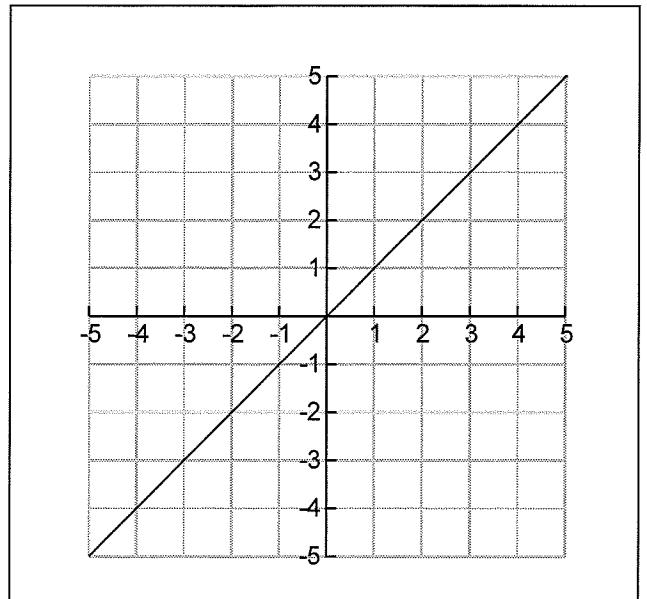
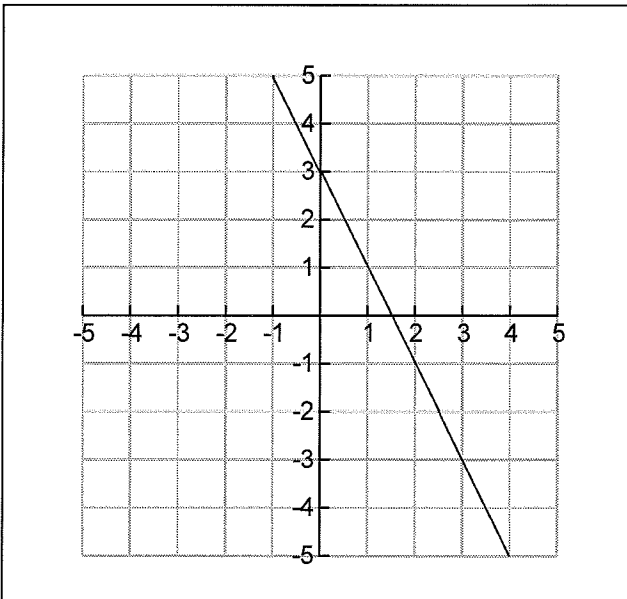
Equation : _____

Slope = $\frac{1}{2}$, y intercept -6

Equation : _____

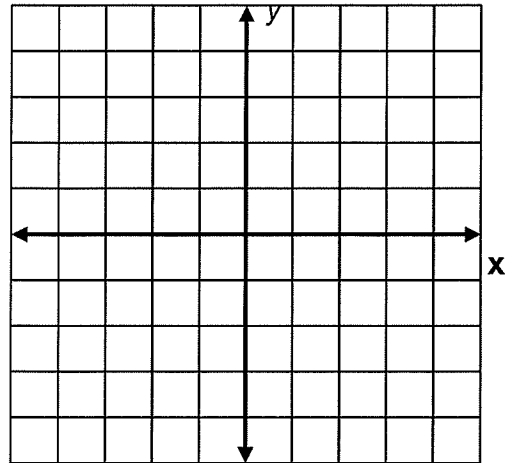
So what do we need to write the equation of a line in $y = mx + b$ form? _____ and _____

Write the equations of the following lines:



Lesson 10: Writing the Equations of Lines with 2 points

Recall: Find the equation of the line with a slope of 5 and passes through (1,2).



So what if they didn't give you the slope? And instead, they gave you 2 points ...

Example 1: Write the equation of the line that passes through (1,-2) and (3,4).

Well, what do you need to write the equation of a line? $y = mx + b$.

How do we find the slope?

Then find the b. (But I have 2 points? Pick either one!)

Finally, write your equation!

Graphically

