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## Ch 7: Linear Equations and Graphs

Slope-intercept form, general form, slope-point form,  
parallel and perpendicular lines

Jan 21-4:44 PM

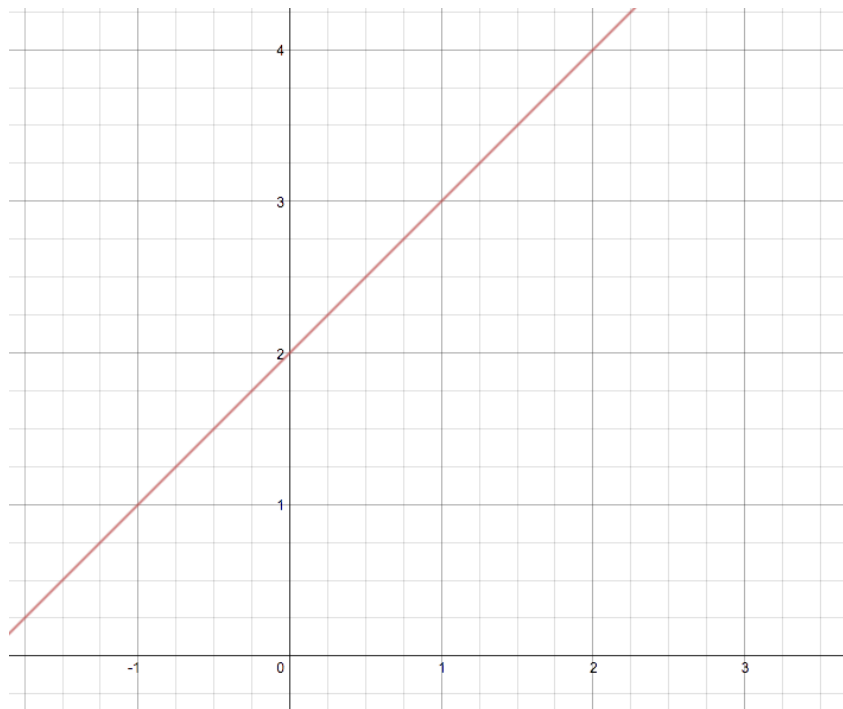
### 7.1 - Slope-intercept Form

Any guess what this form looks like?

(Hint: We figured this out in class on Tuesday)

Jan 21-4:45 PM

Write the equation of the line in slope-intercept form. Then graph the equation on your graphing calculator.



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Convert an equation to slope-intercept form:

You rent a hall for a talent show fundraiser. The relationship between the number of tickets sold,  $x$ , and the profit,  $y$ , in dollars, may be represented by the equation  $12x - y - 840 = 0$ .

Convert the equation to slope intercept form. What is the slope, y-intercept and number of tickets you must sell to break even?

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Homework: Pg 349 #5abc, 6abc, 8ace, 9, 10, 12, 13, 18

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## 7.2 General Form

Where everything = 0

$Ax+By+C=0$ , where A and B are not both zero. By convention A is a whole number.

Jan 21-5:05 PM

Rewrite the following equation in general form.

Jan 25-10:54 AM

- For the linear equation  $4x+5y-20=0$ ,
- a) What is the x-intercept of the graph?
  - b) What is the y-intercept?
  - c) Use the intercepts to graph the line.

Jan 25-10:55 AM

Brooke wants to save \$336. She has two part-time jobs. On weekends, she works as a snowboard instructor and earns \$12 an hour. On weekends, she earns \$16 an hour working as a high school tutor.

- Write an equation to represent the number of hours Brooke needs to work as a snow board instructor,  $S$ , and as a tutor,  $T$ .
- What is the  $S$ -intercept of a graph of the equation?
- What would the  $T$ -intercept be? What does it represent?
- Suppose Brooke works 8 h as a snow board instructor. How many hours will she need to work as a tutor to get \$336?

Jan 25-10:52 AM

Hmwk: pg 365 #1, 2ace, 3aceg, 5, 7, 10, 13, 14

Jan 25-10:59 AM

## 7.3 Slope - point form

$$\text{Recall: } slope = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{y - y_1}{x - x_1}$$

$$(x_2 - x_1)m = \frac{y_2 - y_1}{\cancel{x_2 - x_1}} (\cancel{x_2 - x_1})$$

$$(x_2 - x_1)m = y_2 - y_1$$

where y and  
x are  
variables

$$y_2 - y_1 = m(x_2 - x_1)$$

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

This is slope-point form.

Where you have the slope and a point on the line.

Jan 26-8:51 PM

Use slope-point form to write an equation of the line through (3,-4) with slope 2. Then express the equation in slope-intercept form and graph the line on your calculator.

Jan 26-8:57 PM

Use slope-point form to write an equation of the line through  $(-5, 2)$  and  $(-2, 1)$ . Rewrite the equation in slope-intercept form and general form.

Jan 26-9:03 PM

Hmwk: Pg 377 #1, 2a, 3ac, 4, 6ace, 10, 11, 12, 13, 17

Jan 26-9:13 PM

## 7.4 Parallel and Perpendicular lines

Jan 31-3:19 PM

Parallel lines have the same slope but different intercepts.

Perpendicular lines are **negative reciprocals** of each other. The product of negative reciprocals is -1. Vertical lines with undefined slope and horizontal lines with slope of 0 are also perpendicular.  $m_1(m_2) = -1$

Jan 31-6:51 PM



State whether the lines in each pair of parallel, perpendicular, or neither.

$$y = 3x - 6$$
$$y = -\frac{1}{3}x + 4$$

$$y = 4x + 3$$
$$y = 4x - 5$$

Jan 31-6:54 PM

Write the equation of a line that is parallel to  $2x - y + 4 = 0$  and through point  $(1, -6)$ . Express the equation in slope-intercept form.

1. Find the slope of the equation given
2. Use slope-point form to get an equation
3. Convert to slope-intercept form.

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Hmwk: Pg 390 #1-9, 12

✓ as you need

(home)work Section 7.4:

Pg 392 # 11, 13, 15, 16, 19, 20, 25

Start Reviewing Ch 7

↪ do all

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