

Pd 2 HW #1, 6, 8, 16

CC Algebra  
Unit 4 Review Sheet

Name Key

HW

1) Find the average rate of change of the function that passes through the points (1, 1) and (-2, -8).

2) What is the equation of the line that passes through the point (-2, 13) and has a slope of -4?

~~1)  $y = 3x - 4$~~

3)  $y = -4x + 5$

~~2)  $y = 4x - 22$~~

4)  $y = -4x - 4$

check the table on calc!  
m = -4

Lesson 2 Unit Conversions

3) Peter walked 8,900 feet from home to school. How far, to the nearest tenth of a mile, did he walk?

1 mile = 5,280 feet

SKIP

4) Which expression can be used to change 75 kilometers per hour to meters per minute?

1)  $\frac{75 \text{ km}}{1 \text{ hr}} \times \frac{1,000 \text{ m}}{1 \text{ km}} \times \frac{1 \text{ hr}}{60 \text{ min}}$

3)  $\frac{75 \text{ km}}{1 \text{ hr}} \times \frac{1 \text{ km}}{1,000 \text{ m}} \times \frac{1 \text{ hr}}{60 \text{ min}}$

2)  $\frac{75 \text{ km}}{1 \text{ hr}} \times \frac{1,000 \text{ m}}{1 \text{ km}} \times \frac{60 \text{ min}}{1 \text{ hr}}$

4)  $\frac{75 \text{ km}}{1 \text{ hr}} \times \frac{1 \text{ km}}{1,000 \text{ m}} \times \frac{60 \text{ min}}{1 \text{ hr}}$

Lesson 3 Graphing Linear Functions in Slope-Intercept Form

\* SOLVE for Y =

Identify the slope and the y-intercept and graph the line. Is the graph proportional or non-proportional?

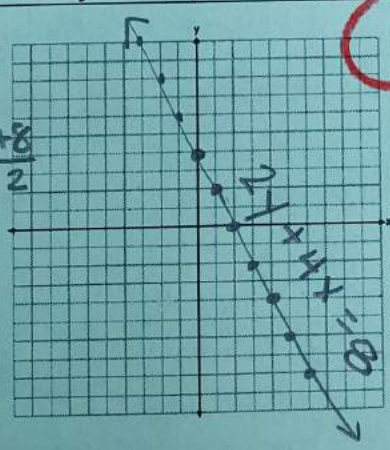
5)  $2y + 4x = 8$   
 $-4x \quad -4x$

$\frac{2y}{2} = \frac{-4x + 8}{2}$

$y = -2x + 4$

$m = \frac{-2}{1}$

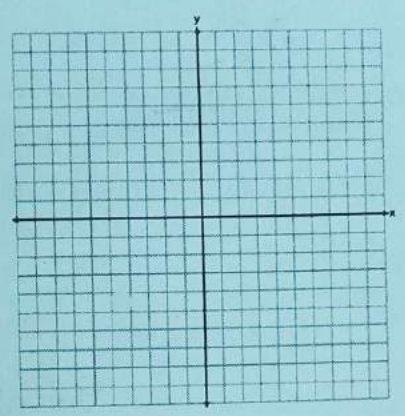
$b = 4$



Proportional or Non-Proportional

\* Does not cross through origin!

6)  $-4y = 12x$



$m =$  \_\_\_\_\_

$b =$  \_\_\_\_\_

Proportional or Non-Proportional

- 1) SLOPE
- 2) Pick a point
- 3) Plug it in
- 4) Solve for b

**Lessons 4/5 Writing Equations of Linear Functions in Slope-Intercept Form**

Write the linear equation in slope-intercept form,  $y = mx + b$  (Show the Five Steps)

7)

①  $m = \frac{\text{rise}}{\text{run}} = \frac{3}{4}$

②  $(1, 2)$   
x y

③  $y = mx + b$   
 $2 = \frac{3}{4}(1) + b$

④  $2 = \frac{3}{4} + b$   
 $-\frac{3}{4}$     $-\frac{3}{4}$   
 $\frac{5}{4} = b$

⑤ Write equation  
 $y = \frac{3}{4}x + \frac{5}{4}$

8) Find the equation of the line that passes through the coordinates (2, 5) and (5, 17).

HW

**Lessons 6/7 Linear Word Problems Show work Algebraically**

9) Mr. Klein is on a diet. He currently weighs 230 pounds. He loses 4 pounds per month.

A) Write a linear equation that represents Mr. Klein's weight,  $w$  after  $n$  months.

$w = -4n + 230$

B) How much will Mr. Klein weigh after 3 months?

$w = -4(3) + 230 = 218 \text{ pounds}$

C) How many months will it take him to weigh 198 pounds?

$198 = -4n + 230$   
 $-230$     $-230$   
 $-32 = -4n$   
 $8 = n$   
 $n = 8 \text{ months}$

10) At the beginning of the year, Tim has \$507 in his checking account. Each week, he will deposit \$38 to increase his savings.

A) If  $S$  represents the savings and  $w$  represents the number of weeks Tim has been saving, write a linear equation for  $S$  in terms of  $w$ .

$S = 38w + 507$

B) How much money will Tim have after 10 weeks?

$S = 38(10) + 507 = \$887$

C) If Tim wants to save \$800, how many weeks will he have to save?

$800 = 38w + 507$   
 $-507$     $-507$   
 $293 = 38w$   
 $38$     $38$   
 $w = 7.7 \approx 8 \text{ weeks}$

### Lesson 8 Vertical and Horizontal Lines

**HOY**  
y = #

**VUX**  
x = #

11) Identify the equation for a horizontal line passing through the point (-6, 5)

$y = 5$

12) Identify the equation for a vertical line passing through the point (7, 9)

$x = 7$

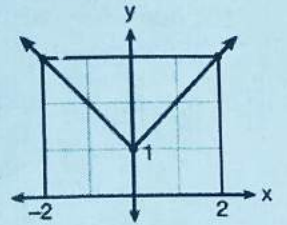
### Lesson 9 Absolute Value & Step Functions

13) Which equation represents the function shown in the accompanying graph?

(1)  $f(x) = |x| - 1$   
(2)  $f(x) = |x| + 1$

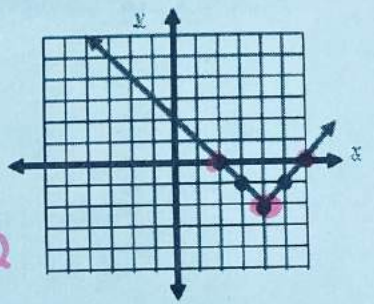
(3)  $f(x) = |x - 1|$   
(4)  $f(x) = |x - 1|$

\* Look at each graph in Calc!



14) Using the absolute value function to the right:

- a) Describe the translation of the graph. Right 5, Down 2
- b) What is the absolute minimum of this function? (5, -2)
- c) State the coordinates of the zeros of the function. x = 2, x = 6
- d) State the range of the function.  $[-2, \infty)$  or  $y \geq -2$



15) The step function  $f(x)$  is shown on the grid below.

(a) Evaluate each of the following:

$f(-4) = 2$

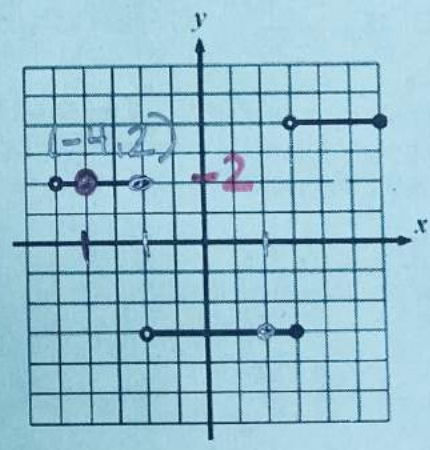
$f(-2) = 2$

$f(2) = -3$

$f(-5) =$

(b) Write an equation for this step function.

$f(x) = \left\{ \begin{array}{l} \end{array} \right.$



### Lesson 10 The Truth About Graphs

16) Determine whether the coordinate pair (-2, 3) is a solution to  $3y = 2x + 13$ . Justify your answer.

HW

plug in to "check"

17) Which of the following points lie in the solution set of the inequality  $y \geq -\frac{1}{3}x - 3$ ?

(1)  $(0, -5)$   
 $-5 \geq -\frac{1}{3}(0) - 3$   
 $-5 \geq -3$   
**FALSE**

(2)  $(-6, 4)$  ✓  
 $4 \geq -\frac{1}{3}(-6) - 3$   
 $4 \geq 2 - 3$   
 $4 \geq -1$  **TRUE!**

(3)  $(3, 6)$  ✓  
 $6 \geq -\frac{1}{3}(3) - 3$   
 $6 \geq -1 - 3$   
 $6 \geq -4$  **TRUE!**

(4)  $(0, 0)$  ✓  
 $0 \geq -\frac{1}{3}(0) - 3$   
 $0 \geq 0 - 3$   
 $0 \geq -3$  **TRUE!**

18) Does the coordinate pair  $(5, -4)$  lie in the solution set of the system of equations below? Justify your answer.

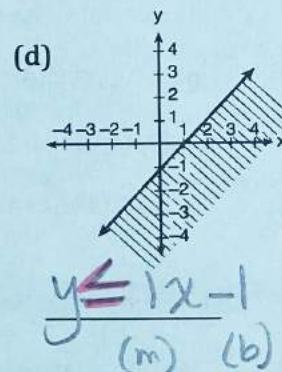
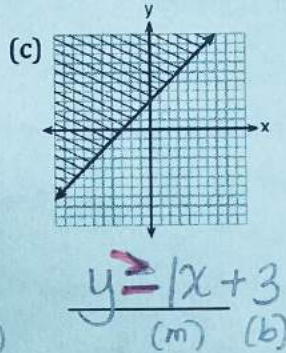
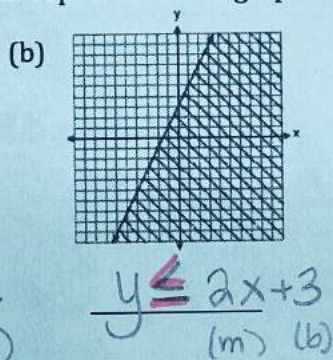
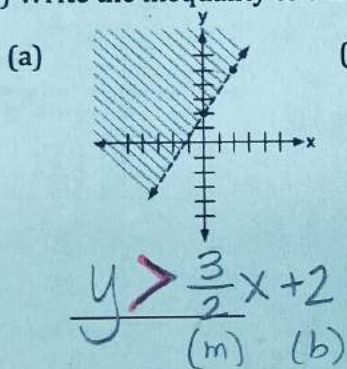
$y = x - 9 \rightarrow -4 = 5 - 9$   
 $y^2 = 4x + y \rightarrow -4 = -4$  ✓

$(-4)^2 = 4(5) + (-4)$   
 $16 = 16$  ✓

**Yes! Both equations are true!**  
 (Type each side in calc!)

### Lesson 11 Graphing Inequalities

19) Write the inequality to that represents each graph shown below.



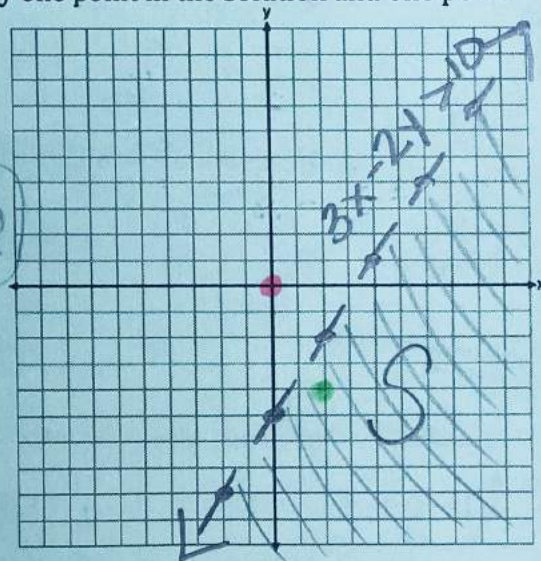
20) Re-write the following linear inequality in slope-intercept form. Identify the slope and the y-intercept then graph the solution set on the coordinate plane. Identify one point in the solution and one point not in the solution. **Show all work.**

$3x - 2y > 10$   
 $-\frac{3x}{-2} - 2y > \frac{10}{-2}$

$-\frac{2y}{-2} > \frac{-3x + 10}{-2}$

$y < \frac{3}{2}x - 5$

\* Divide by Neg, FLIP inequality!



One Point In Solution:  $(2, -4)$   
 In shaded region

One Point Not In Solution:  $(0, 0)$   
 NOT in shaded region