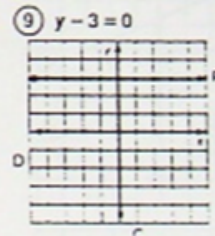
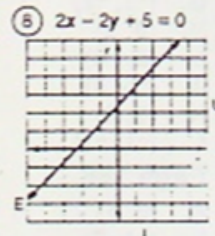
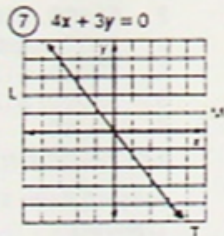
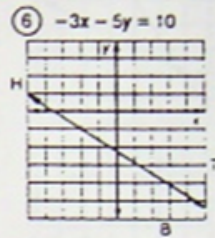
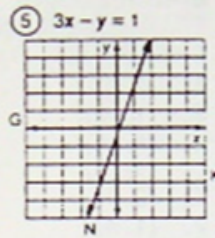
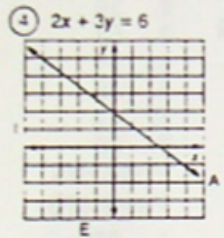
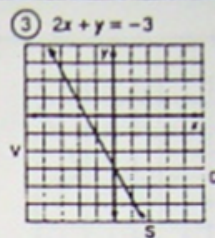
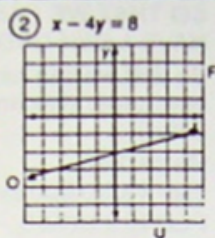
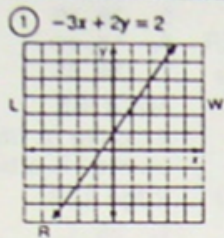


# SOLUTIONS/QUESTIONS FROM THE HOMEWORK???

## Why Does a Poor Man Drink Coffee ?

Use the slope and y-intercept to graph each equation below. The graph, if extended, will cross a letter. Print this letter in each box that contains the number of that exercise.



6	8	6	4	3	5	2	9	1	2	9	8	1	7	8	4
H	E	H	A	S	N	O	P	R	O	P	E	R	T	E	A

OBJECTIVE 5-1 To graph a line given its equation (includes vertical lines) ©1991 Creative Publications 157

HE HAS NO PROPER  
TEA

He has no proper tea  
(property).

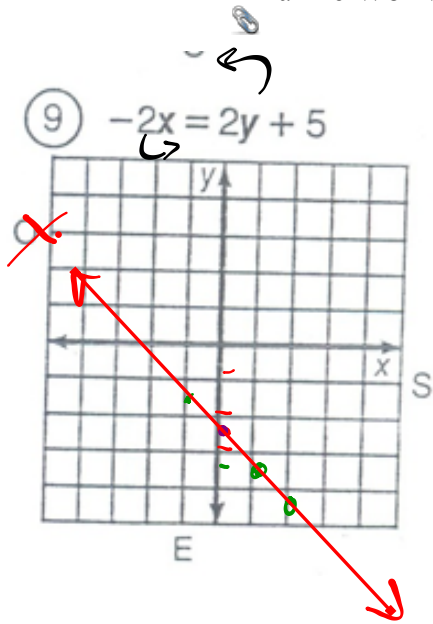
Page 158

SHE HAD A BUM  
STEER

# HOMWORK...

# Questions...

Puzzle Worksheet - Graphing Lines.docx



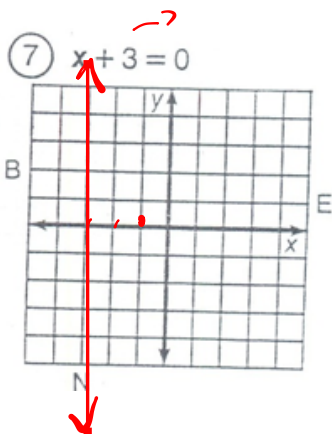
①  $y = mx + b$

$-\cancel{2}y = \frac{2x}{\cancel{-2}} + \frac{5}{\cancel{-2}}$

$y = -\frac{1}{1}x - 2.5$

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

- ② y-int
- ③  $\frac{\text{Rise}}{\text{Run}}$

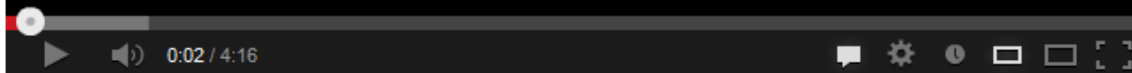


$x = -3$   
 \* vertical

$$y = mx + b$$

Graph!

Westerville South High School



Graph! (WSHS Math Rap Song)

# Graphing Linear Functions

NOTES - Graphing Linear Relationships.docx

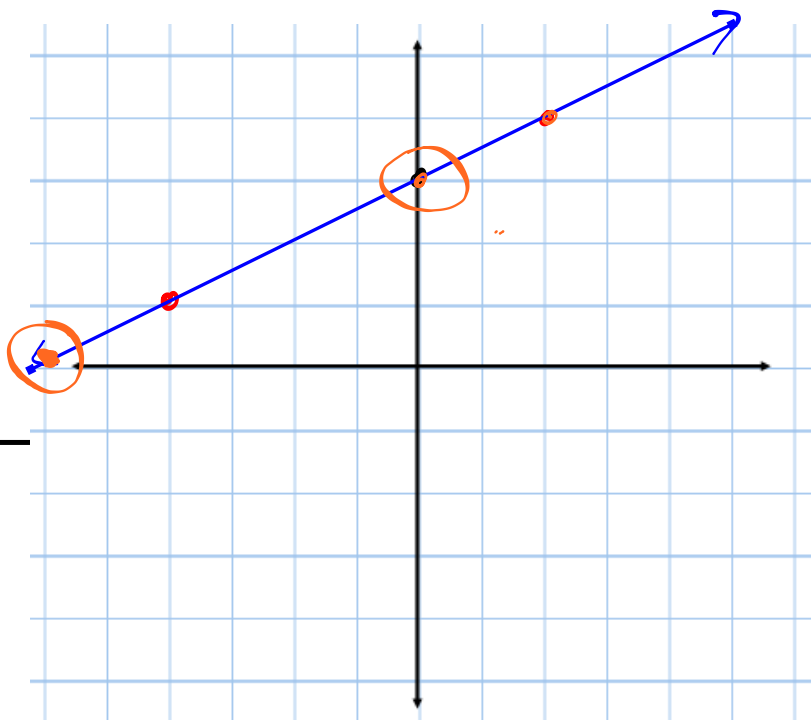
## Method #1 - Table of Values (must have at least 3 points)

ex:  $3x - 6y + 18 = 0$

$$\frac{-6y}{-6} = \frac{-3x - 18}{-6}$$

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

	x	y
y-int	0	3
$\frac{1}{2}(2) + 3 \Rightarrow$	2	4
$\frac{1}{2}(-4) + 3 \Rightarrow$	-4	1



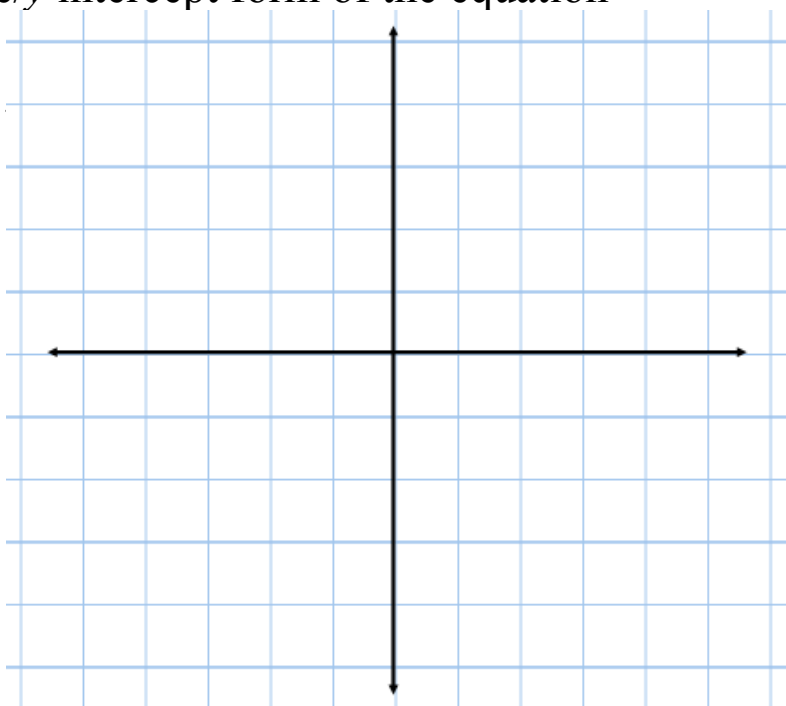
## Method #2 - Using the slope/y intercept form of the equation

- put equation in the form.

$$y = mx + b$$

- plot the y intercept
- use slope =  $\frac{\text{Rise}}{\text{Run}}$  to plot other points.

ex:  $3x - 2y = -4$



Method #3 - Using  $x / y$  intercepts

ex:  $x - 5y - 10 = 0$

$x$ -int

$x - 5(0) - 10 = 0$

$x - 10 = 0$

$x = 10$

$(10, 0)$

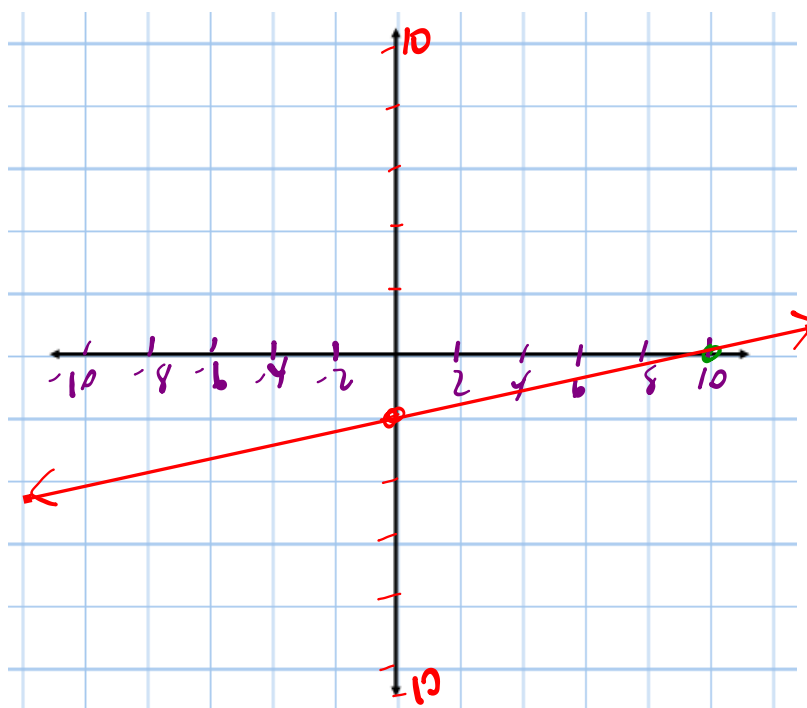
$y$ -int

$0 - 5y - 10 = 0$

$-5y = 10$

$y = -2$

$(0, -2)$



???

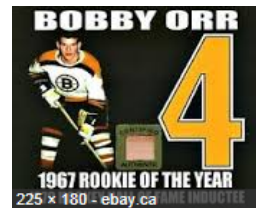
## Linear Inequalities:

Inequality sign - could be one of the following...

	LESS THAN		LESS THAN		OR EQUAL TO
	$>$	$<$	$>$	$\leq$	$\neq$
GREATER THAN			GREATER THAN OR EQUAL TO		NOT EQUAL TO

When solving an in-equation, all the steps are the same EXCEPT when it comes to **isolating**...

$$4 \boxed{<} 11, \text{ fill in the box.}$$



VS

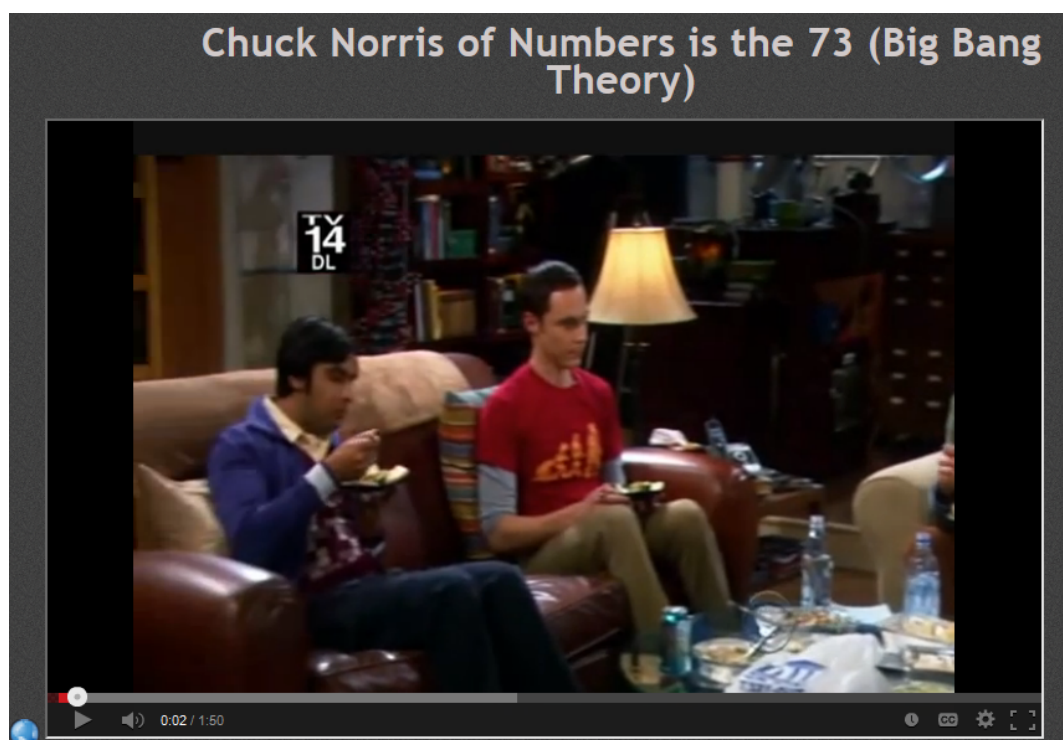
Now divide both by -1

$$-4 \boxed{>} -11, \text{ fill in the box.}$$



**RULE:** If you multiply or divide by a negative, **reverse** the inequality sign!!!

## Favorite Numbers... What's Sheldon's???



**NOTES - Graphing a Linear Inequation.docx**

When the solution set to a linear inequality is continuous and the sign does not include equality, use a dashed line for the boundary and shade the solution region.

Example: Graph the solution to:  $2x - 3y < 6$ .   
 First, solve for the equation in the slope - y intercept form ( $y = mx + b$ ).

$$2x - 3y < 6$$

$$-3y < -2x + 6$$

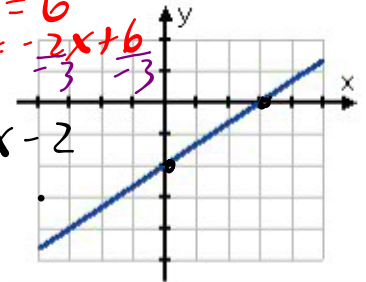
$$y > (2/3)x - 2$$

**STEP 1: Graph the boundary line**

$$2x - 3y = 6$$

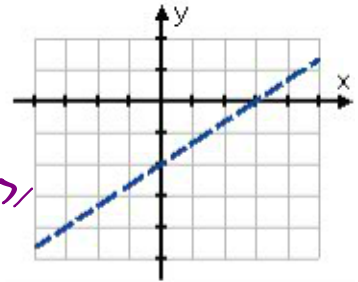
$$-3y = -2x + 6$$

$$y = \frac{2}{3}x - 2$$



Find the "equals" part, which is the line  $y = (2/3)x - 2$ . It looks like this:

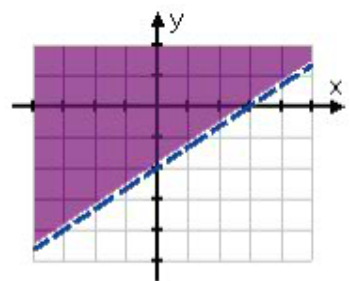
But this example is a **strict** inequality. That is, it's only "y greater than." We denote strict inequalities on the number line (such as  $x > 5$ ) by using an open dot instead of a closed dot. In the case of these linear inequalities, the notation for a strict inequality is a dashed line. So the boundary line of the solution region actually looks like this:



**STEP 2: Decide on dashed or solid**

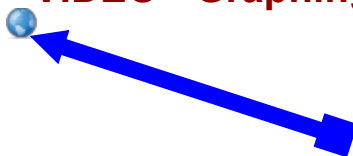
$>$  or  $<$

By using a dashed line, we can still identify the boundary line, but the dashed line indicates that the boundary line isn't included in the solution. Since this is a "y greater than" inequality, we will shade above the line, so the solution looks like this:



**STEP 3: Pick a 'test point' and verify**  
**STEP 4: Shade**

**VIDEO - Graphing Inequalities**

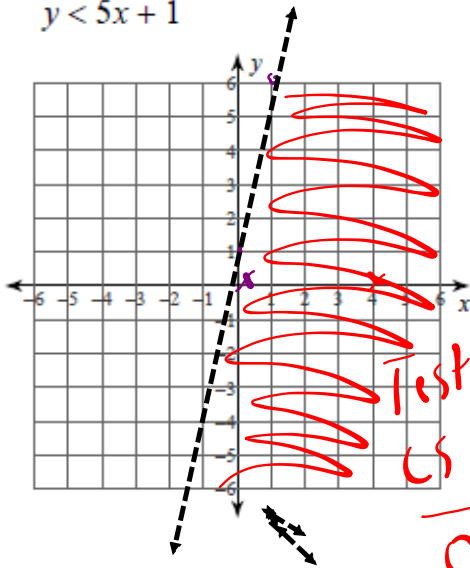


Click **HERE** to watch the video!!!



**EXAMPLE #2:**

$y < 5x + 1$   
 no equals  $\rightarrow$  dashed



$$y = \frac{5}{1}x + 1$$

Test Point  $\Rightarrow (0, 0)$

Sub  $\rightarrow y < 5x + 1$

Test  $(4, 0)$   
 $\rightarrow$  RS  
 CS

$$\begin{array}{r} 0 \\ \hline 5(4) + 1 \\ 21 \\ \text{yes} \end{array}$$

CS	$<$	RS
0		$5(0) + 1$
		1
		yes

EXAMPLE #3:

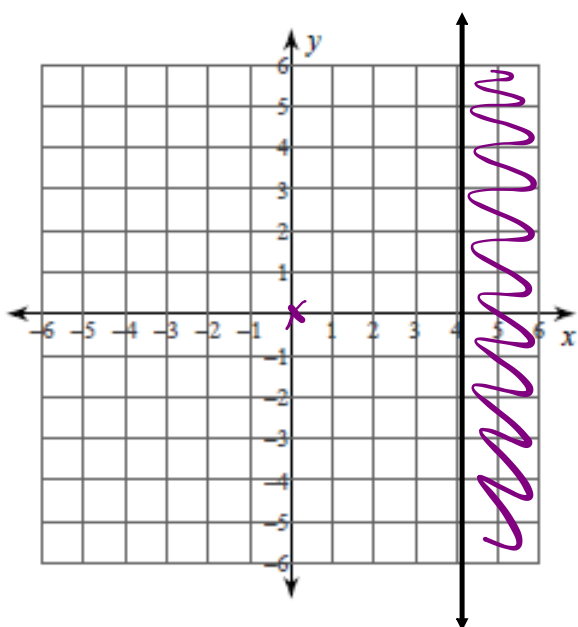
$3y \leq -5x$   
 Solid line

Sub \* Make it an equation  
 Not a solution  $3y = -5x$   
 \* Get  $y = mx + b$   
 $y = -\frac{5}{3}x$   
 \* Graph line  
 \* Test

Test  
 $(3, -1)$   
 $3y \leq -5x$   
 $3(-1) \leq -5(3)$   
 $-3 \leq -15$   
NO

**EXAMPLE #4:**

$$x \geq 4$$




$x = 4$   
vertical

Test (0, 0)

LS $\geq$	RS
$x$	$4$
$0$	No

# HOMWORK...

 Puzzle Worksheet - Graphing Linear Inequalities with Two Variables.pdf

## Attachments

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NOTES - Graphing Linear Relationships.docx

Puzzle Worksheet - Graphing Lines.docx

NOTES - Graphing a Linear Inequation.docx

Puzzle Worksheet - Graphing Linear Inequalities with Two Variables.pdf