5-19-17

Aim: SWBAT graph linear inequalities.

Do Now: Correct last 2 hw with key

HW: Pg. 632 # 9, 12, 13, 17, 18, 21

Test Wednesday

Review Packet due June 2nd

Pg. 608 # 3- 8

(3) $y = 6x - 3$

y-int. ($x=0$)	x-int ($y=0$)
$y = 6x - 3$	$y = 6x - 3$
$y = 6\cdot0 - 3$	$0 = 6x - 3$
$y = 0 - 3$	$+3 \quad +3$
$y = -3$	$\frac{3}{6} = \frac{6x}{6}$
coord. of y-int	$\frac{1}{2} = x$
$(0, -3)$	coord. of x-int
	$(\frac{1}{2}, 0)$

(4) $x + 4y = 12$

y-int ($x=0$)	x-int ($y=0$)
$x + 4y = 12$	$x + 4y = 12$
$0 + 4y = 12$	$x + 4\cdot0 = 12$
$\frac{4y}{4} = \frac{12}{4}$	$x + 0 = 12$
$y = 3$	$x = 12$
coord. of y-int	coord. of x-int
$(0, 3)$	$(12, 0)$

(5) $5x - 2y = 10$

y-int ($x=0$)	x-int ($y=0$)
$5x - 2y = 10$	$5x - 2y = 10$
$5\cdot0 - 2y = 10$	$5x - 2\cdot0 = 10$
$0 - 2y = 10$	$5x - 0 = 10$
$\frac{-2y}{-2} = \frac{10}{-2}$	$\frac{5x}{5} = \frac{10}{5}$
$y = -5$	$x = 2$
coord. of y-int	coord. of x-int
$(0, -5)$	$(2, 0)$

(6) $x + 9y = 18$

y-int ($x=0$)	x-int ($y=0$)
$x + 9y = 18$	$x + 9y = 18$
$0 + 9y = 18$	$x + 9\cdot0 = 18$
$\frac{9y}{9} = \frac{18}{9}$	$x + 0 = 18$
$y = 2$	$x = 18$
coord. of y-int	coord. of x-int
$(0, 2)$	$(18, 0)$

(7) $4x+5y=20$

y-int ($x=0$)	x-int ($y=0$)
$4x+5y=20$	$4x+5y=20$
$4\cdot0+5y=20$	$4x+5\cdot0=20$
$0+5y=20$	$4x+0=20$
$\frac{5y}{5}=\frac{20}{5}$	$\frac{4x}{4}=\frac{20}{4}$
$y=4$	$x=5$
coord. of y-int	coord. of x-int.
$(0,4)$	$(5,0)$

(8) $7x-9y=-63$

y-int ($x=0$)	x-int ($y=0$)
$7x-9y=-63$	$7x-9y=-63$
$7\cdot0-9y=-63$	$7x-9\cdot0=-63$
$0-9y=-63$	$7x-0=-63$
$\frac{-9y}{-9}=\frac{-63}{-9}$	$\frac{7x}{7}=\frac{-63}{7}$
$y=7$	$x=-9$
coord. of y-int	coord. of x-int.
$(0,7)$	$(-9,0)$

Pg. 628 # 1-3

① $y = -x + 3$

$m = -1$

$b = 3$

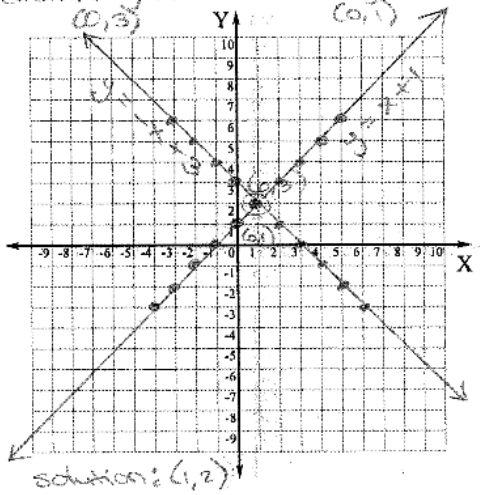
coord. of y-int $(0,3)$

$y = x + 1$

$m = 1$

$b = 1$

coord. of y-int $(0,1)$



solution: $(1,2)$

Check

$y = -x + 3$

$2 \stackrel{?}{=} -1 + 3$

$2 = 2$

$y = x + 1$

$2 \stackrel{?}{=} 1 + 1$

$2 = 2$

② $x - y = 1$

$-x \quad -x$

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

$y = x - 1$

$m = 1$

$b = -1$

coord. of y-int $(0,-1)$

$5x - 4y = 0$

$-5x \quad -5x$

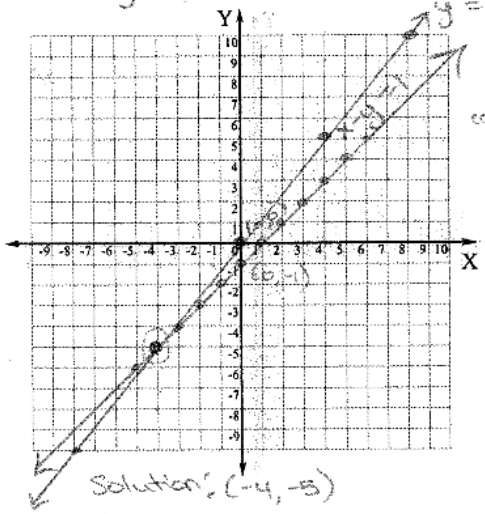
$\frac{-4y}{-4} = \frac{-5x}{-4}$

$y = \frac{5}{4}x$

$m = \frac{5}{4}$

$b = 0$

coord. of y-int $(0,0)$



Solution: $(-4,-5)$

Check

$x - y = 1$

$-4 - (-5) \stackrel{?}{=} 1$

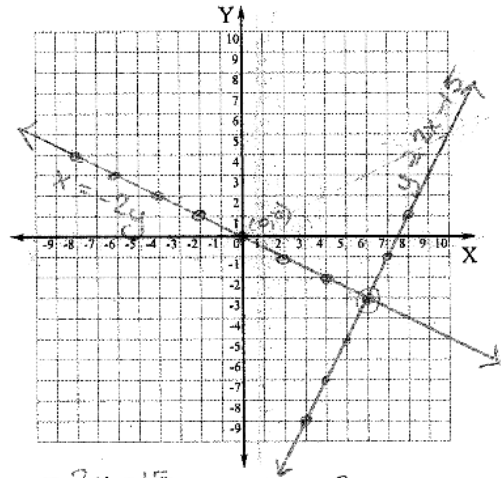
$1 = 1$

$5x - 4y = 0$

$5(-4) - 4(-5) \stackrel{?}{=} 0$

$-20 - (-20) \stackrel{?}{=} 0$

$0 = 0$



③ $y = 2x - 15$

$m = 2$

$b = -15$

coord. of y-int $(0,-15)$

$x = -2y$

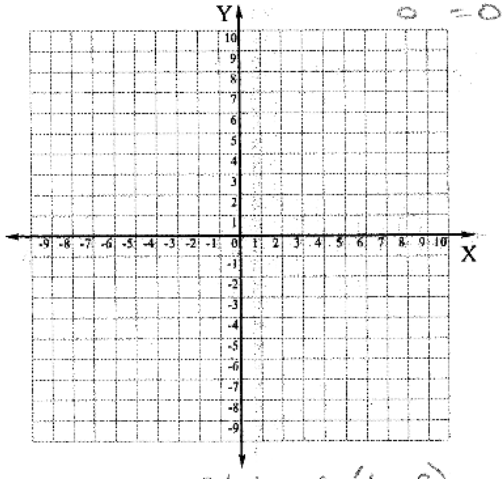
$\frac{2y}{2} = \frac{x}{2}$

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

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

$b = 0$

coord. of y-int $(0,0)$



Solution: $(6,-3)$

Check

$y = 2x - 15$

$-3 \stackrel{?}{=} 2(6) - 15$

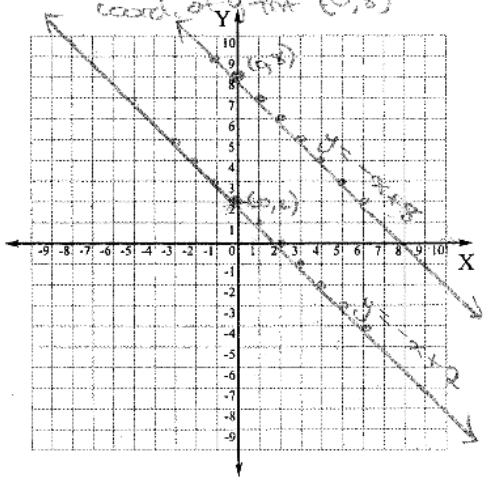
$-3 = -3$

$x = -2y$

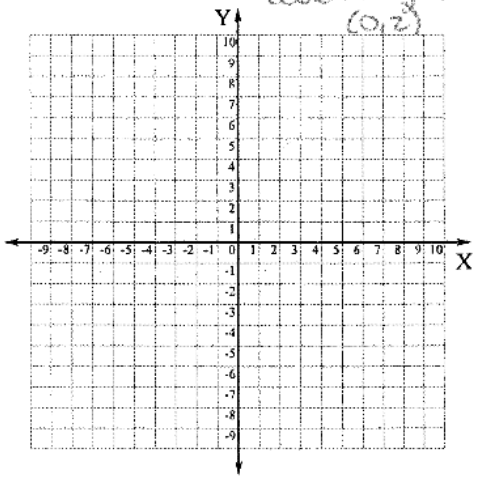
$6 \stackrel{?}{=} -2(-3)$

$6 = 6$

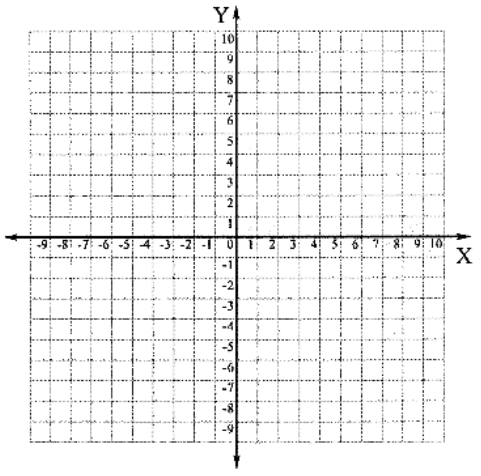
$x+y=8$
$-x \quad -x$
$y=-x+8$
$m=-1$
$b=8$
coord. of y-int (0,8)

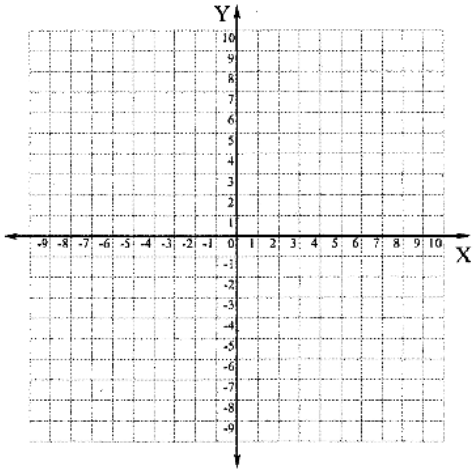


$3x+3y=6$
$-3x \quad -3x$
$\frac{3y}{3}=\frac{-3x+6}{3}$
$y=-x+2$
$m=-1$
$b=2$
coord. of y-int (0,2)



There is NO solution because the lines are parallel.





Linear Equations vs Linear Inequalities

- line

- every point on the line is part of the solution set
  any ordered pair (x,y) satisfies the equation

- infinite number of solutions because there are an infinite number of points on the line

- line and shade a region

- points on the line may or may not be part of the solution set
  solid line ordered pairs (x,y) satisfies the equation

  dashed line ordered pairs do not satisfy the equation

- every point (x,y) in the shaded region is part of the solution set

- infinite number of solutions because there are an infinite number of points on the solid line and in the shaded region

Solid Lines

$\leq$ & $\geq$

- points on the line are part of the solution set

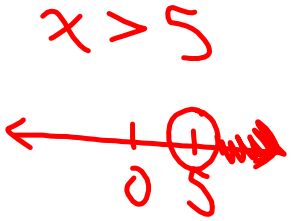
$x \geq 5$

Dashed Lines

$<$ & $>$

- points on the line are <u>not</u> part of the solution set

$x > 5$



$y - 2x > 3$

$+2x \quad +2x$

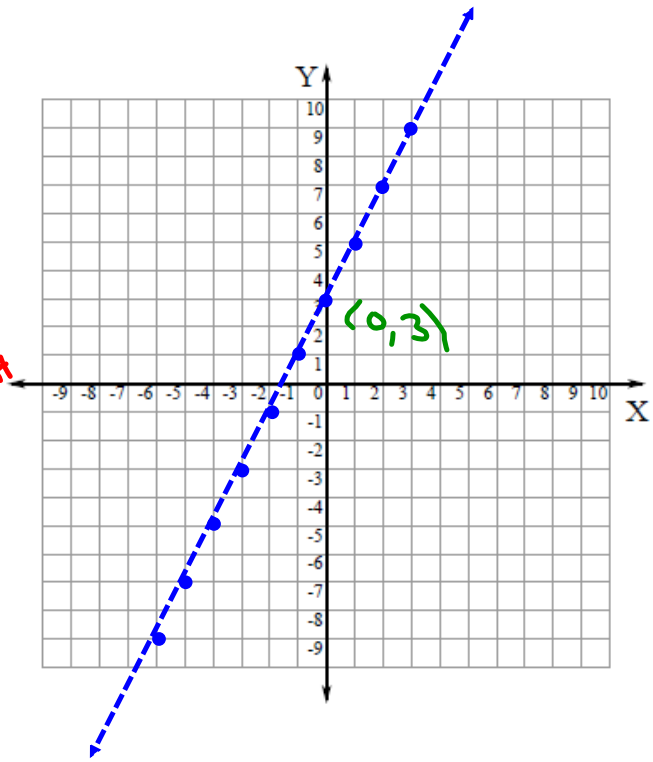
$y > 2x + 3$

$m = 2 = \frac{2}{1}$ 2 up 1 right

$b = 3$

coord. of y-int

$(0, 3)$



$y - 2x > 3$ dashed

$+2x \quad +2x$

dashed $y > 2x + 3$

$m = 2$

$b = 3$

coord. of the y-int

$(0, 3)$

TEST

$(0,0)$

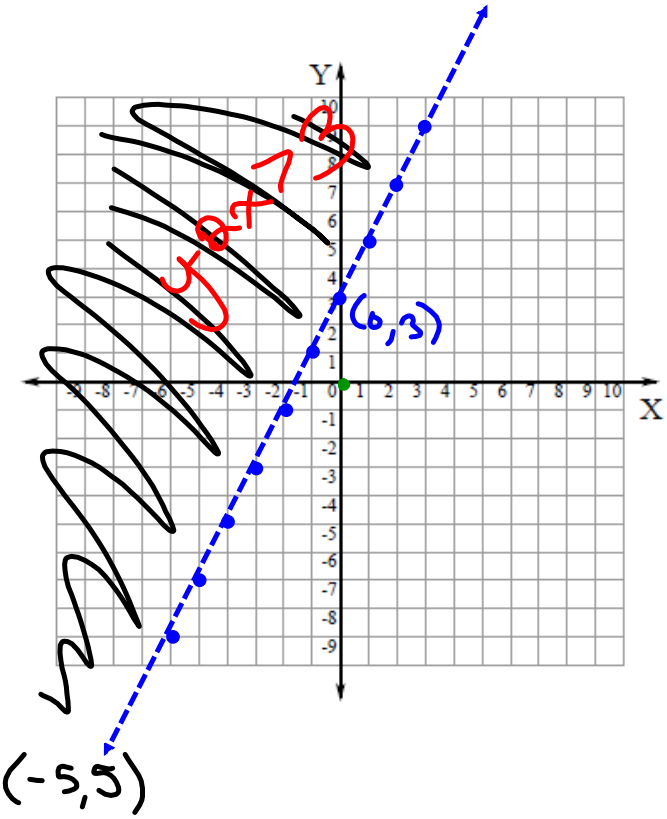
$y - 2x > 3$

$0 - 2 \cdot 0 \stackrel{?}{>} 3$

$0 > 3$

False

The point $(0,0)$ is not part of the solution set.



$y - 2x > 3$

$5 - 2(-5) \stackrel{?}{>} 3$

$5 - (-10) \stackrel{?}{>} 3$

$15 > 3$ True

The point $(-5,5)$ is part of the solution set.

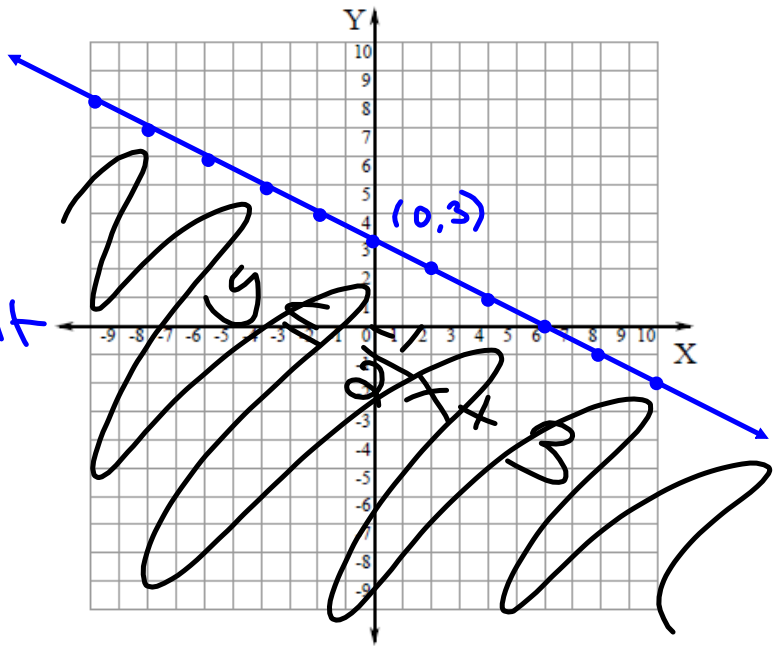
solid

$y \leq \frac{-1}{2}x + 3$

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

$b = 3$

(coord. of y-int $(0, 3)$)



Check $(-8, 0)$

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

$0 \overset{?}{\leq} \frac{-1}{2}(-8) + 3$

$0 \overset{?}{\leq} 4 + 3$

$0 \leq 7$ True

$(0, 8)$

$y \overset{?}{\leq} \frac{-1}{2}x + 3$

$8 \overset{?}{\leq} \frac{-1}{2}(0) + 3$

$8 \not\leq 3$ False