5-14-18

Aim: SWBAT find the x- and y-intercepts of a linear equation algebraically.

HW: WS

Quiz Tomorrow & Unit Review due Wednesday

Test Friday

Do Now: What is the y-coordinate of every point on the x- axis?
What is the x-coordinate of every point on the y- axis?

What is the y-coordinate of every point on the x-axis?

What is the x-coordinate of every point on the y-axis?

HOMEWORK - Solving Linear Systems of Equations Graphically

1) Graph the following system of equations on the given graph.

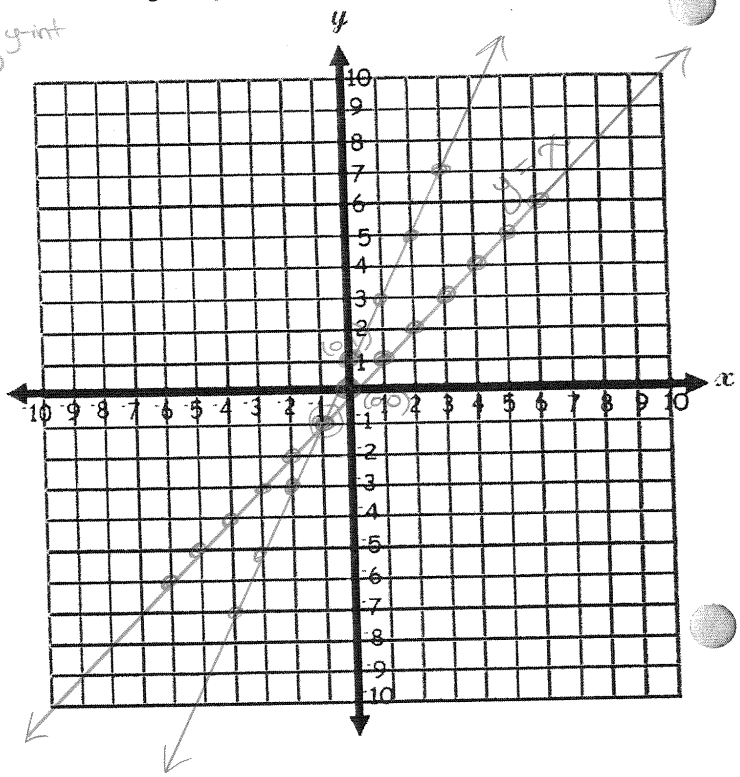
$y = x$ → $m = 1$, $b = 0$, coord. of y-int $(0,0)$

$y = 2x + 1$

$m = 2$

$b = 1$

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



What is the point of intersection of the 2 lines? $(-1, -1)$

The solution to the system is $(-1, -1)$

Substitute the point of intersection into BOTH of the equations and CHECK your answer.

$y = x$

$-1 = -1$ TRUE

$y = 2x + 1$

$-1 \stackrel{?}{=} 2(-1) + 1$

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

$-1 = -1$ TRUE

Is the system consistent, inconsistent, or dependent? How do you know?

Consistent. There is <u>one</u> point of intersection so there is only <u>one</u> solution.

2) Solve the following systems of equations graphically and check your answer. State if the system is consistent, inconsistent, or dependent.

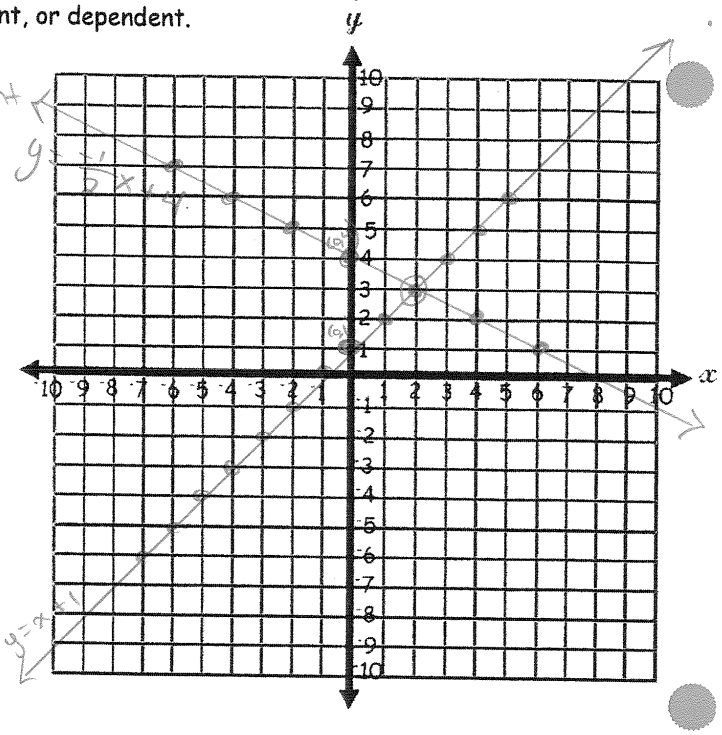
$y = x + 1$ → m = 1, b = 1, coord. of y-int (0,1)

$y = -\frac{1}{2}x + 4$

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

$b = 4$

coord. of y-int. (0,4)



Solution: (2,3)

Type of System: Consistent

Check:

$y = x + 1$ $\quad y = -\frac{1}{2}x + 4$

$3 \stackrel{?}{=} 2 + 1$ $\quad 3 \stackrel{?}{=} (-\frac{1}{2})(2) + 4$

$3 = 3$ TRUE $\quad 3 = 3$ TRUE

3) $y = -3x - 3$ → m = -3, b = -3, coord. of y-int (0,-3)

$3x + y = 6$

$-3x \quad -3x$

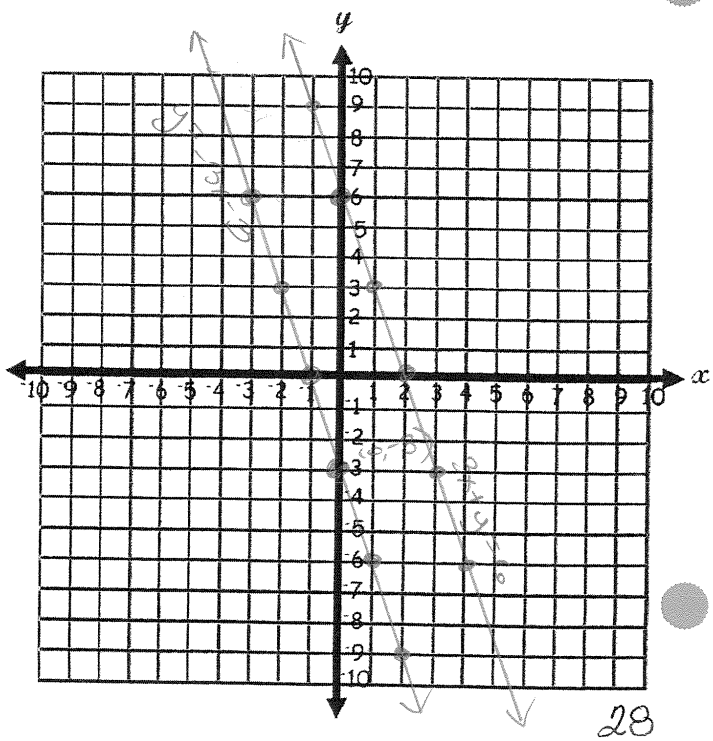
$y = -3x + 6$

$m = -3$

$b = 6$

coord. of y-int

(0,6)



Solution: no solution

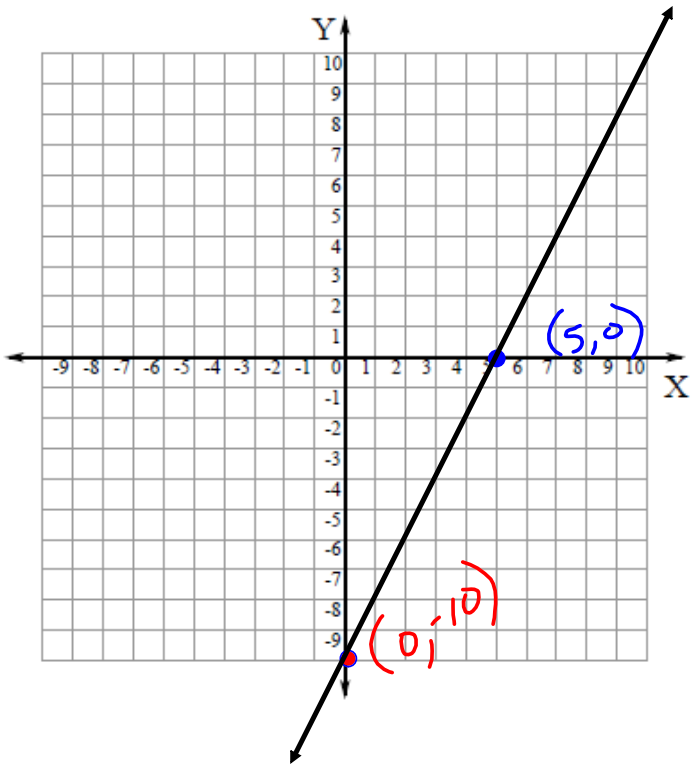
Type of System: Inconsistent

Check:

The lines are parallel so they will never intersect.

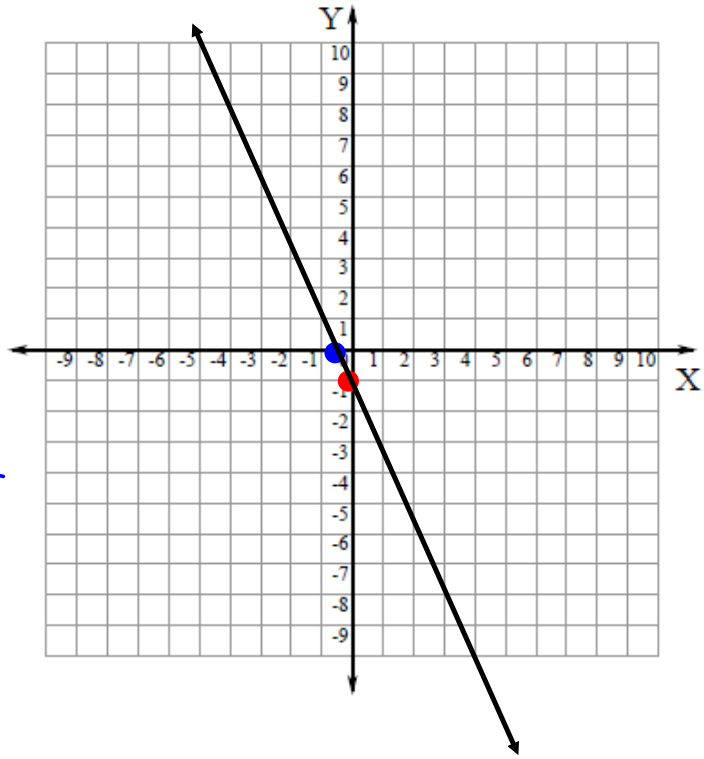
- $y = 2x - 10$

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



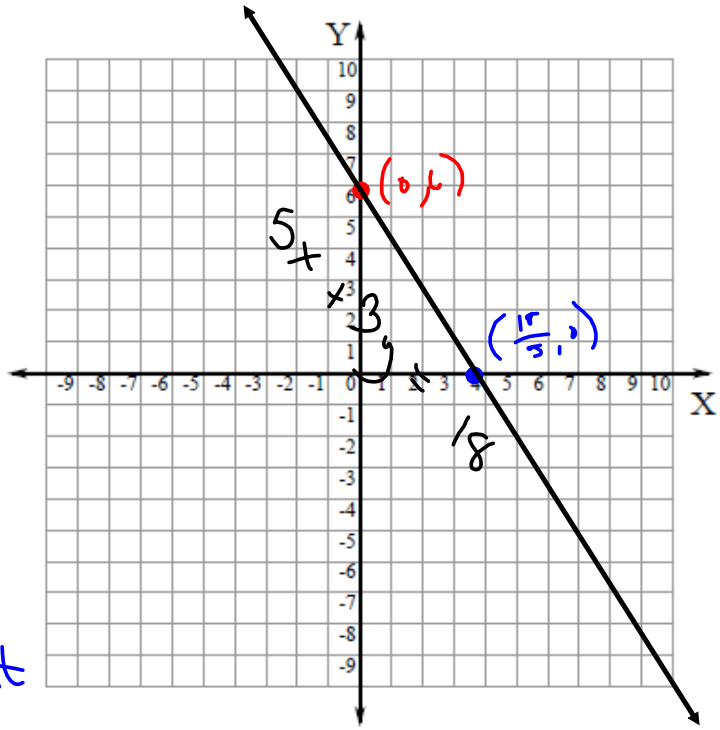
$3x + y = -1$

y-int ($x = 0$)	x-int ($y = 0$)
$3x + y = -1$ $3 \cdot 0 + y = -1$ $y = -1$ coord. of the y-int. $(0, -1)$	$3x + y = -1$ $3x + 0 = -1$ $\frac{3x}{3} = \frac{-1}{3}$ $x = -\frac{1}{3}$ coord. of x-int $\left(-\frac{1}{3}, 0\right)$



- $5x + 3y = 18$

y-int ($x = 0$)	x-int ($y = 0$)
$5x + 3y = 18$	$5x + 3y = 18$
$5(0) + 3y = 18$	$5x + 3 \cdot 0 = 18$
$\frac{3y}{3} = \frac{18}{3}$	$\frac{5x}{5} = \frac{18}{5}$
$y = 6$	$x = \frac{18}{5}$
coord. of y-int	coord. of x-int
$(0, 6)$	$\left(\frac{18}{5}, 0\right)$



Pg. 631 # 3-6

(3) $5x+y \leq 17$; $(\overset{x}{1}, \overset{y}{2})$

$5(1)+2 \overset{?}{\leq} 17$

$5+2 \overset{?}{\leq} 17$

$7 \leq 17$ yes

(4) $3x+7y < 20$; $(\overset{x}{-11}, \overset{y}{2})$

$3(-11)+7(2) \overset{?}{<} 20$

$-33+14 \overset{?}{<} 20$

$-19 < 20$ yes

(5) $9x+12y > 26$; $(\overset{x}{3}, \overset{y}{-4})$

$9(3)+12(-4) \overset{?}{>} 26$

$27+(-48) \overset{?}{>} 26$

$-21 \not> 26$ NO

(6) $11x+18y \geq 31$; $(\overset{x}{-6}, \overset{y}{-7})$

$11(-6)+18(-7) \overset{?}{\geq} 31$

$-66+(-126) \overset{?}{\geq} 31$

$-192 \not\geq 31$ no

Homework (Pg. 608 # 3 – 8)

Find the X and Y-intercepts of the graph of the equation algebraically.

3. $y = 6x - 3$

4. $x + 4y = 12$

5. $5x - 2y = 10$

6. $x + 9y = 18$

7. $4x + 5y = 20$

8. $7x - 9y = -63$
