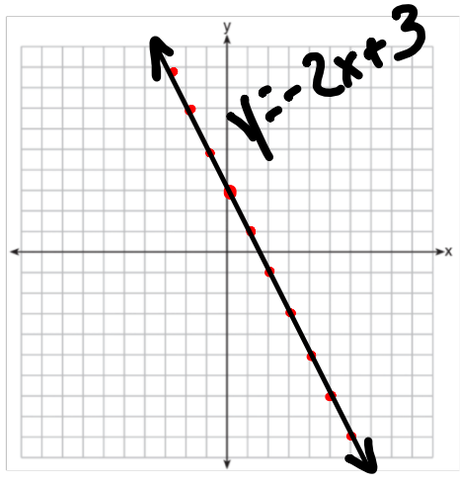
Name:_____ Date:_____

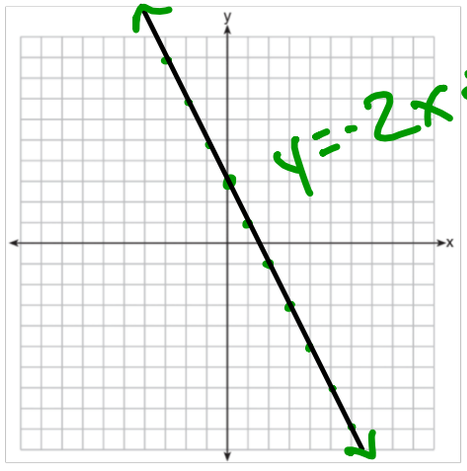
Notes: Graphing Linear Equations

$$y = mx + b$$

m: -2
b: 3

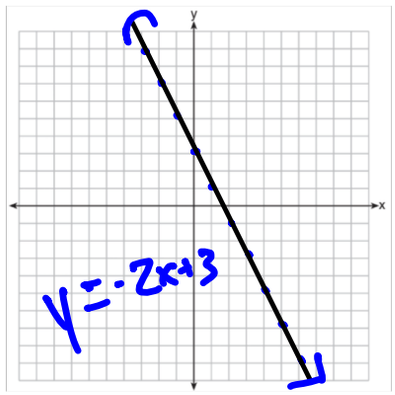
Without a Calculator: Graph $y = -2x + 3$.





x	$-2x + 3$	y	(x,y)
0	-2(0) + 3	3	(0,3)
1	-2(1) + 3	1	(1,1)
2	-2(2) + 3	-1	(2,-1)
3	-2(3) + 3	-3	(3,-3)

With a Calculator



X	Y
-2	7
-1	5
0	3
1	1
2	-1
3	-3

Y= → $Y_1 = -2x + 3$

SECOND → GRAPH (to get the X,Y table)

Is the point $(-24,59)$ a solution to the equation?

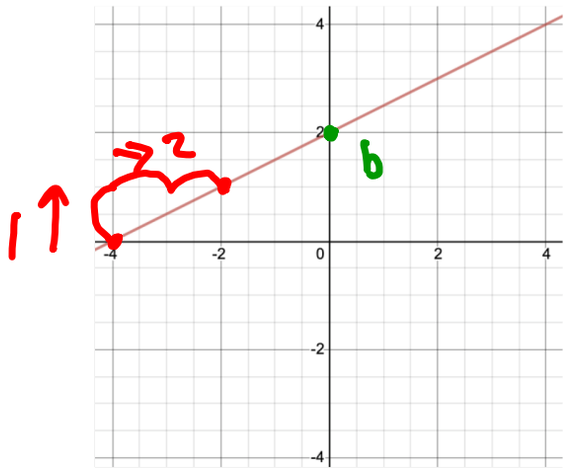
NO

$Y = -2(-24) + 3$
$Y = 48 + 3$
$Y = 51$
(-24,51)

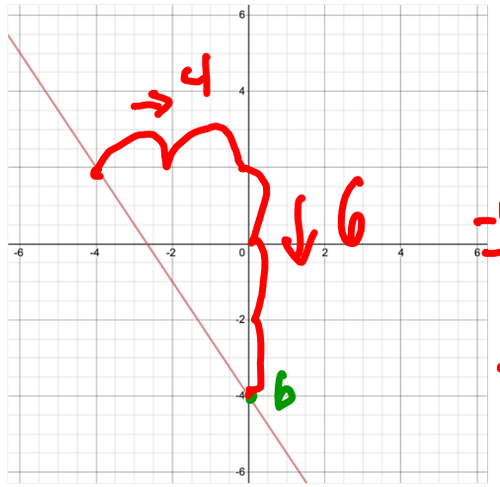
Is the point $(-24,59)$ on the line?

NO, since (-24,59) is not a solution to $Y = -2x + 3$ then the point is also not on the line $Y = -2x + 3$.

Write the equation of each linear function in $y = mx + b$ form.



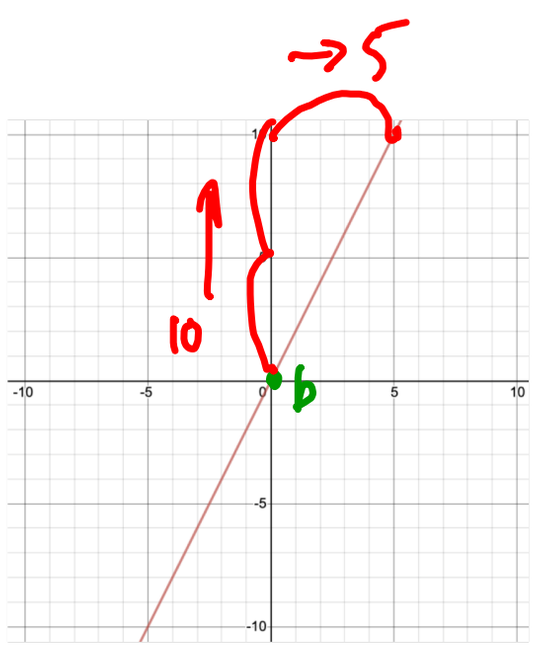
Equation: $y = \frac{1}{2}x + 2$



$\frac{-4}{6}$

$\frac{-2}{3}$

Equation: $y = \frac{-2}{3}x - 4$



$m = \frac{10}{5}$

$m = 2$

Equation: $y = 2x$

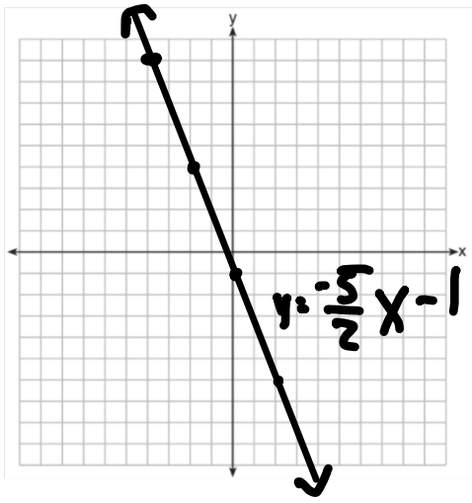
Name:_____ Date:_____

Classwork: Graphing Linear Equations

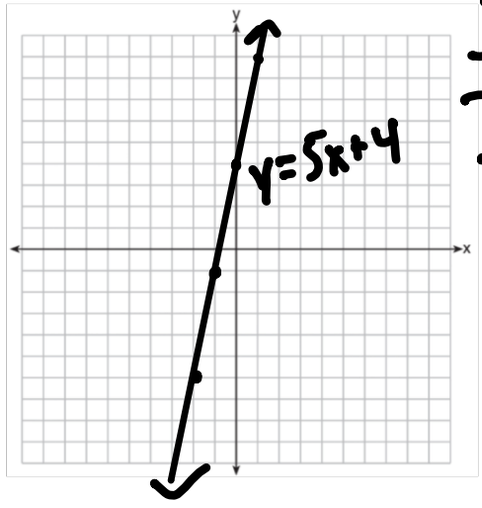
Graph each of the following linear equations.

1) $y = -\frac{5}{2}x - 1$

X	Y
-4	9
-2	4
0	-1
2	-6
4	-11



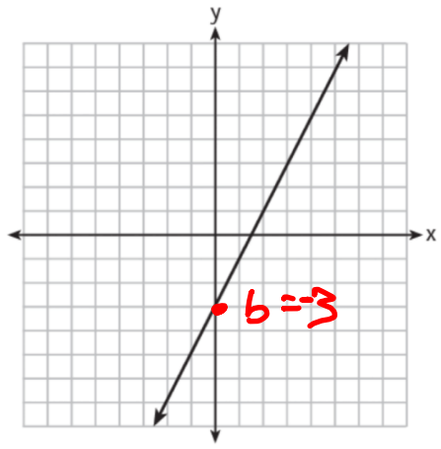
2) $y = 5x + 4$



X	Y
-2	-6
-1	-1
0	4
1	9

3)

Which function has the same y-intercept as the graph below?



(1) $y = \frac{12 - 6x}{4}$

(2) $27 + 3y = 6x$

(3) $6y + x = 18$

(4) $y + 3 = 6x$

-3 -3

$y = 6x - 3$

4)

The graph of a linear equation contains the points (3,11) and (−2,1). Which point also lies on the graph?

(1) (2,1)
(2) (2,4)
(3) (2,6)
(4) (2,9)

$\frac{11-1}{3-(-2)} = \frac{10}{5} = 2$

$y = 2x + 5$

$9 = 2(2) + 5$

$9 = 9$ ✓

$y = 2x + b$

$11 = 2(3) + b$

$11 = 6 + b$

$b = 5$

5)

The value of the x-intercept for the graph of $4x - 5y = 40$ is

(1) 10
(2) $\frac{4}{5}$
(3) $-\frac{4}{5}$
(4) -8

↓ when $y = 0$

$4x - 5(0) = 40$

$4x = 40$

$x = 10$

6)

How many of the equations listed below represent the line passing through the points (2,3) and (4,−7)?

$5x + y = 13$
$y + 7 = -5(x - 4)$
$y = -5x + 13$
$y - 7 = 5(x - 4)$

(1) 1
(2) 2
(3) 3
(4) 4

A ⇒ $y = -5x + 13$

$y + 7 = -5x + 20$

$y = -5x + 13$

$3 = -5(2) + 13$

$3 = 3$ ✓

$-7 = -5(4) + 13$

$-7 = -7$ ✓

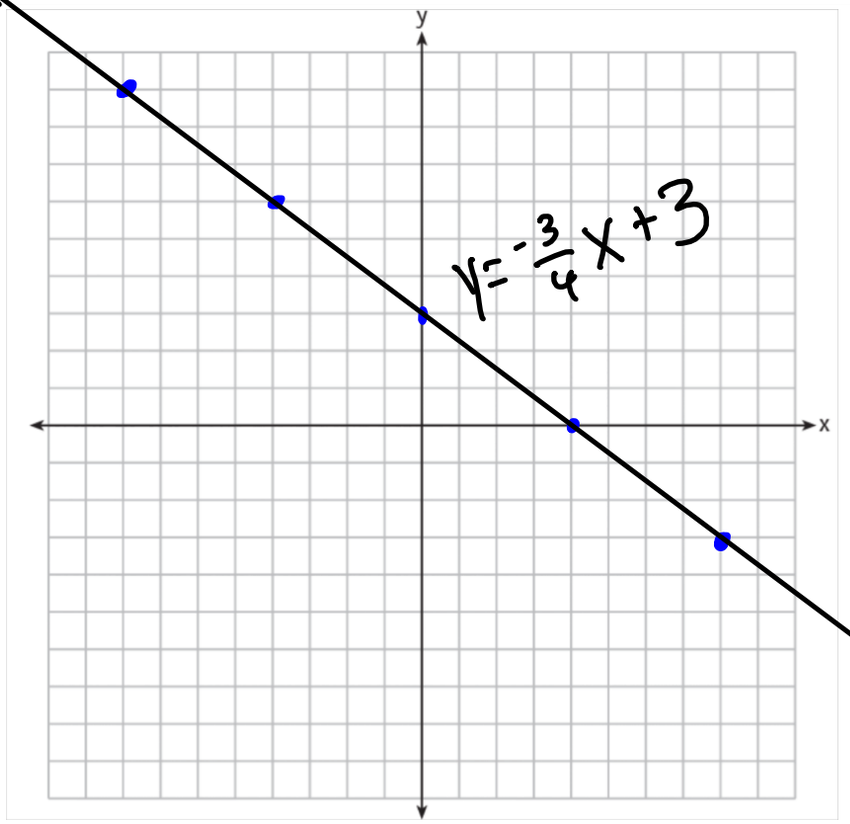
X

$y - 7 = 5x - 20$

$y = 5x - 13$

7)

On the set of axes below, draw the graph of the equation $y = -\frac{3}{4}x + 3$.



X	Y
-8	9
-4	6
0	3
4	0
8	-3

Is the point (3,2) a solution to the equation? Explain your answer based on the graph drawn.

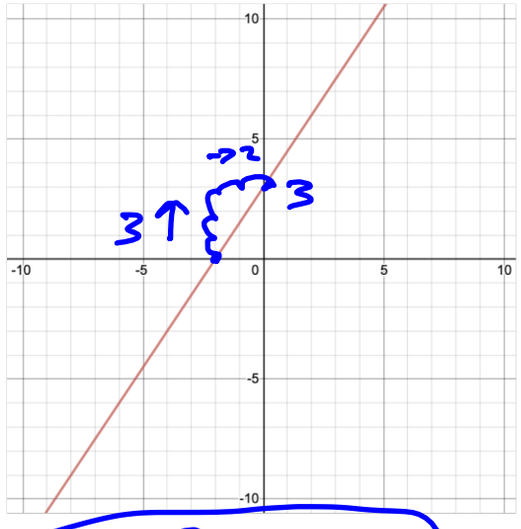
No because (3,2) is not a point on the line of the equation $y=\frac{-3}{4}x+3$.

Write the equation of each of the following lines in $y = mx + b$ form.

$m = -\frac{5}{1} = -5$

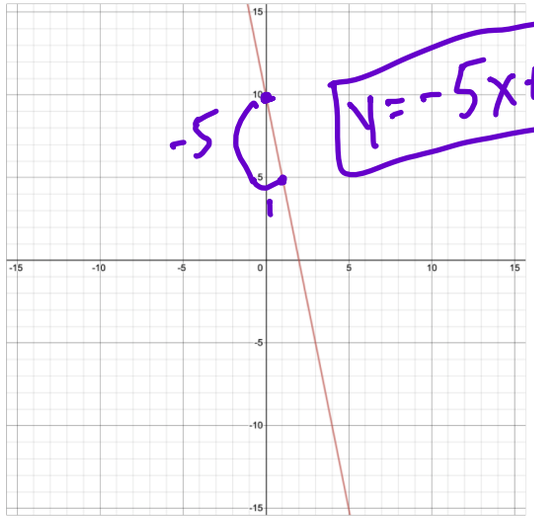
$b = 10$

8)



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

9)

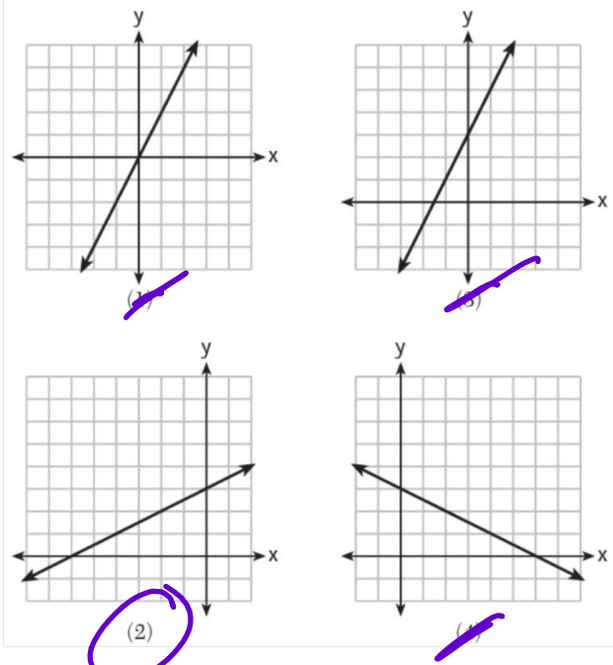


$y = -5x + 10$

10)

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

Which graph shows a line where each value of y is three more than half of x?



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

11) 1 + 6 = 7

Zeke and six of his friends are going to a baseball game. Their combined money totals $28.50. At the game, hot dogs cost $1.25 each, hamburgers cost $2.50 each, and sodas cost $0.50 each. Each person buys one soda. They spend all $28.50 on food and soda.

Write an equation that can determine the number of hot dogs, x, and hamburgers, y, Zeke and his friends can buy.

$1.25x + 2.50y + 0.50(7) = 28.50$

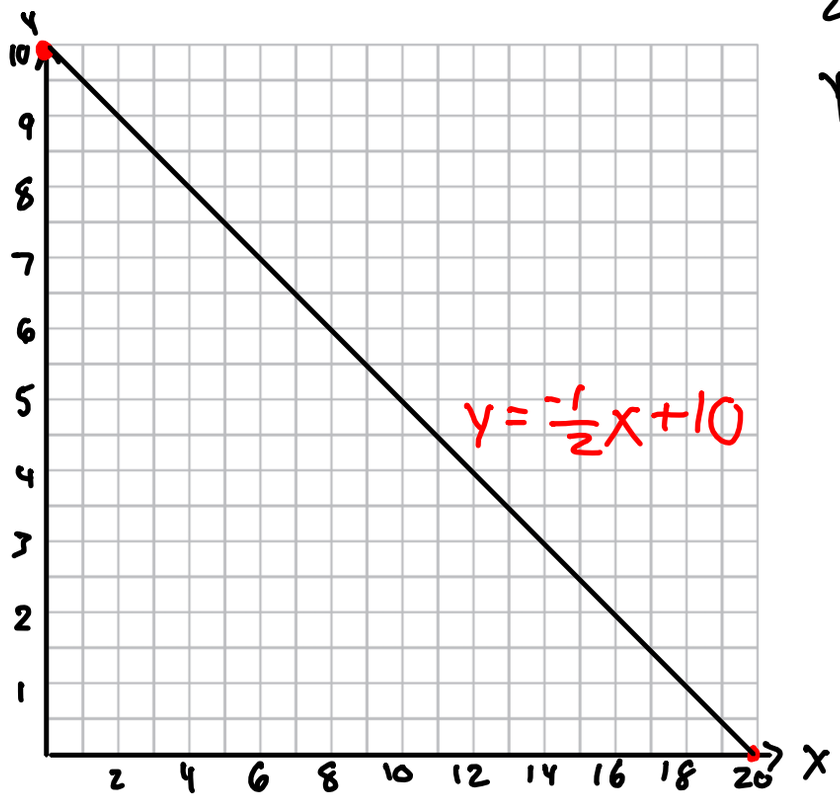
$1.25x + 2.50y + 3.5 = 28.5$

$1.25x + 2.5y = 25$

$\frac{2.5y}{2.5} = \frac{-1.25x + 25}{2.5}$

$y = -\frac{1}{2}x + 10$

Graph your equation on the grid below.



X	Y
0	10
1	9.5
2	9
3	8.5
4	8
6	7
8	6
10	5
12	4
14	3
16	2
18	1
20	0

Determine how many different combinations, including those combinations containing zero, of hot dogs and hamburgers Zeke and his friends can buy, spending all $28.50. Explain your answer.

11 different combinations. You can only count the points on the line when x and y are both positive (can't have negative hot dogs) and a whole number (can't buy half a hot dog)