

Get out your homework and have it ready to check! We will have a Target Check Wednesday over equations in $y = mx + b$ form.

Classwork - Slope intercept practice

Warm Up on the worksheet on the front table.

1) For the following equations, identify the important properties of the line (slope and y-intercept). Then use this information to graph the lines. Label the y-int and at least one slope triangle (rise and run).

A) ~~$y = 2x + 7$~~ $y = -2x + 3$

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

$b = (\underline{0}, \underline{3})$

B) ~~$y = \frac{1}{2}x + 4$~~ $y = \frac{1}{4}x - 5$

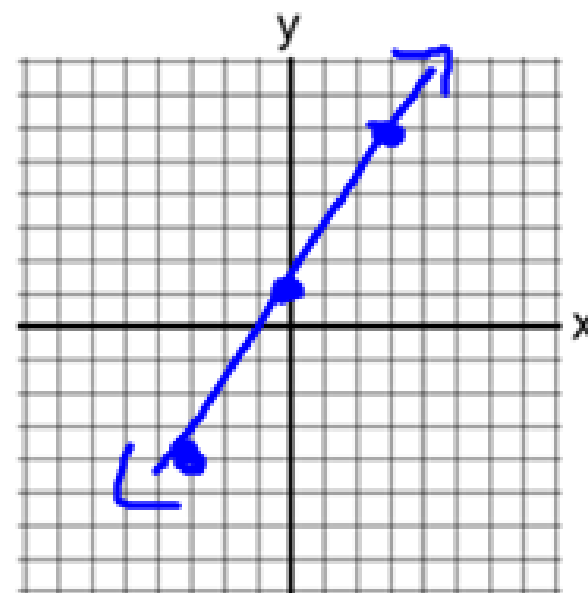
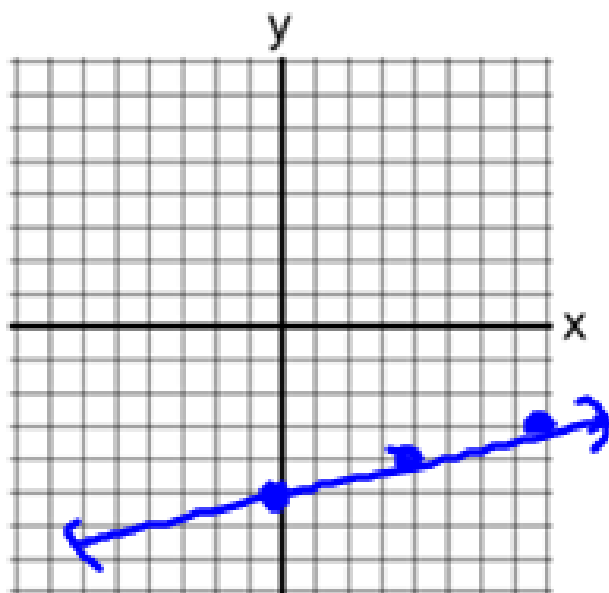
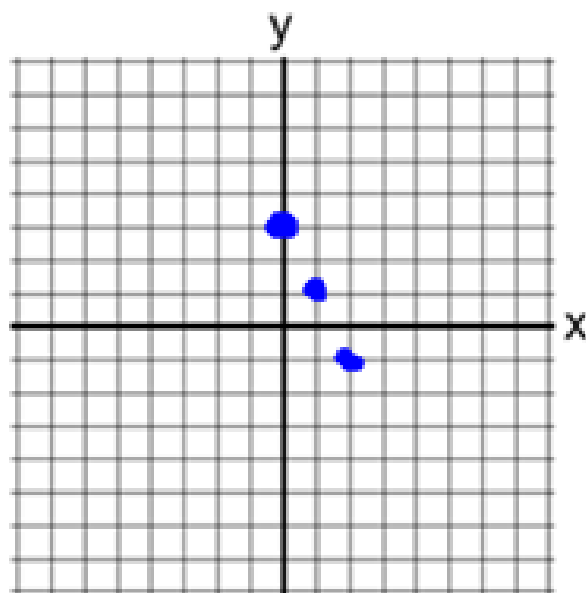
$m = \underline{\frac{1}{4}}$

$b = (\underline{0}, \underline{-5})$

~~$y = -x + 3$~~ $y = \frac{5}{3}x + 1$

$m = \underline{\frac{5}{3}}$

$b = (\underline{0}, \underline{1})$



2) Find the slope and y-intercept of the following tables. Then write the equation. If the y-intercept is not located in the table, then use your slope to find it.

A)

x	-2	-1	0	1	2
y	5	2	-1	-4	-7

$+1$ $+1$ $+1$ $+1$
 -3 -3 -3 -3

Slope: $\frac{-3}{1} = -3$

Y-int: $(0, -1)$

Equation: $y = -3x - 1$

$\frac{\Delta y}{\Delta x}$

B)

x	-4	-2	0	2	4
y	-10	-4	2	8	14

$+2$ $+2$ $+2$ $+2$
 $+6$ $+6$ $+6$ $+6$

Slope: $\frac{6}{2} = 3$

Y-int: $(0, 2)$

Equation: $y = 3x + 2$

C)

x	-6	-2	0	2	6	10
y	7	5	3	3	1	-1

$+4$ $+4$ $+4$ $+4$
 -2 -2 -2 -2

Slope: $\frac{-2}{4} = -\frac{1}{2}$

Y-int: $(0, 4)$

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

1) Look at the following tables. Identify the rate of change (slope) on the table. Then decide whether the relationship is linear or nonlinear. If it is linear, find the y-intercept. SHOW ALL WORK. Check a few of the (x,y) in your equation to make sure it works. Write an equation in slope intercept form if the relationship is linear.

Days (x)	Dollars saved (y)
-2	10
-1	15
0	20
1	25
2	30

Linear / Non Linear (circle one)

Slope: 5 Y-int: (0, 20)

Equation: $y = 5x + 20$

Days (x)	Dollars saved (y)
-4	2
-2	4
0	15
2	28
4	45

Linear / Non Linear (circle one)

Slope: NA Y-int: (,)

Equation: NA

hours (x)	Miles traveled (y)
2	50
4	170
6	290
8	410
10	530

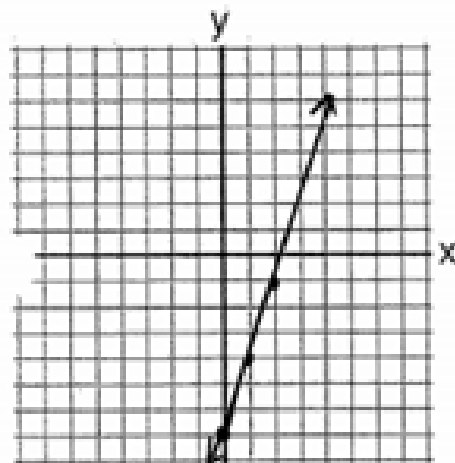
Linear / Non Linear (circle one)

Slope: 60 Y-int: (0, -70)

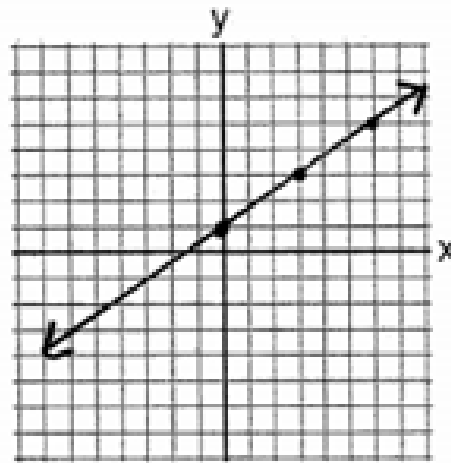
Equation: $y = 60x - 70$

2) For the following equations, identify the important properties of the line (slope and y-intercept). Then use this information to graph the lines. Label the y-int and at least one slope triangle (rise and run).

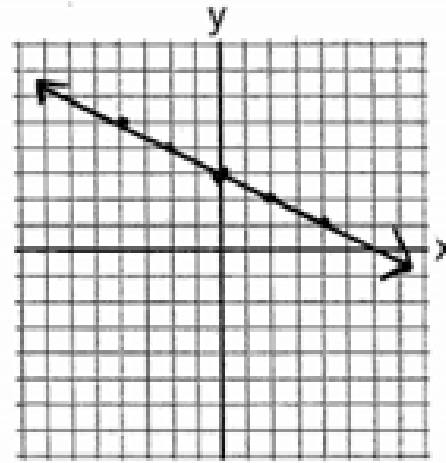
A) $y = 3x - 7$



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

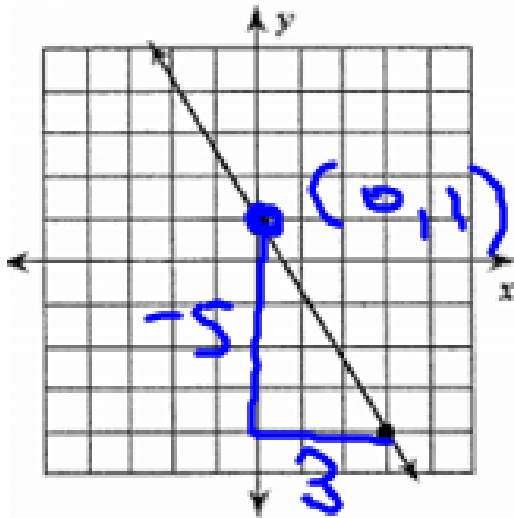


B) $y = -\frac{1}{2}x + 3$



3) For the following graphs, identify the slope and y-intercept. Then write the equations that represents the line.

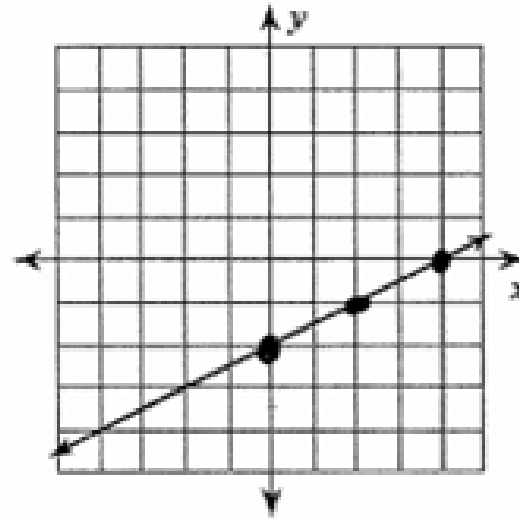
A)



Y-intercept: 1 Slope: $\frac{\text{rise}}{\text{run}}$: $-\frac{5}{3}$

Equation: $y = -\frac{5}{3}x + 1$

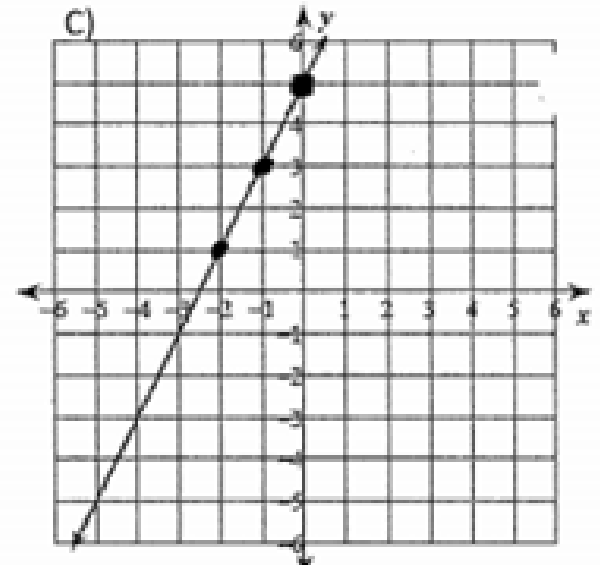
B)



Y-intercept: -2 Slope: $\frac{\text{rise}}{\text{run}}$: $\frac{1}{2}$

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

C)



Y-intercept: 5 Slope: $\frac{\text{rise}}{\text{run}}$: 2

Equation: $y = 2x + 5$

For the following situations, create an equation that models the situation.

4) The table below represents the money in Sydney's bank account.

Day number (x)	0	1	2	3	4
Bank account balance (y)	165	152	139	126	113

A) Describe the pattern that exists between the number of days that pass and Sydney's bank account balance.
(show this pattern on the table)

The balance decreases by 13 each day that passes.

B) What other information do you need before you can make an equation to model this situation?

Show how you could find this using the table.

The y-intercept

C) Create an equation that models this situation?

(Label what each part of your equation means)

$$y = -13x + 165$$

(Note: In the original image, an arrow labeled 'm' points to -13 and an arrow labeled 'b' points to 165.)

D) Use your equation to find when she will have 9 dollars in her account. SHOW WORK.

$$y = 9 \quad x = ?$$

$$\begin{array}{r} 9 = -13x + 165 \\ -165 \quad -165 \\ \hline -156 = -13x \\ \frac{-156}{-13} = \frac{-13x}{-13} \end{array}$$

$x = 12 \quad 12 \text{ days}$

Equations of Horizontal and Vertical Lines

1) Answer the following questions about the horizontal line below.

A) What is the slope of the line shown? $m = \underline{0}$

B) What is the y-intercept of the line? $b = \underline{(0, 2)}$

C) Plot 4 points on the line and enter the ordered pairs into the table below.

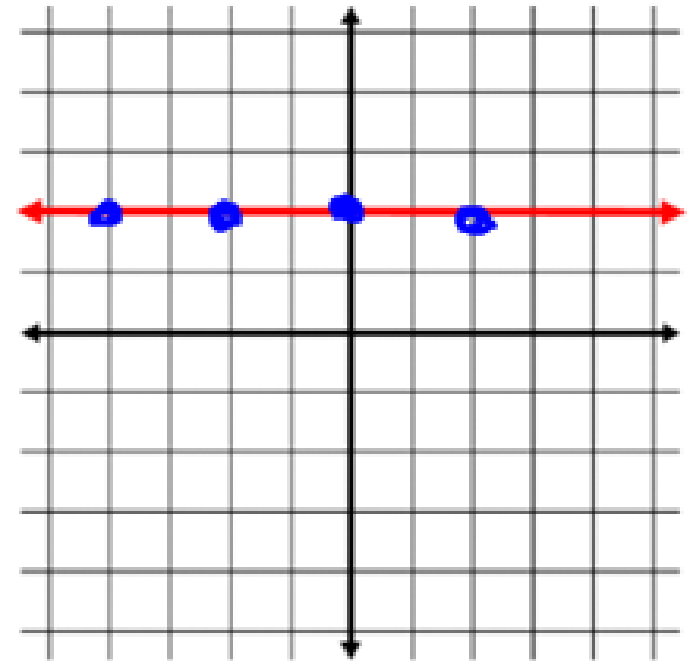
x	-4	-2	0	2
y	2	2	2	2

D) Write an equation for the line shown.

$$y = 2$$

E) Explain a rule that will be true for the equation of any horizontal line.

y is equal to the y-intercept.



$$y = mx + b$$

$$y = 0x + 2$$

$$y = \cancel{0} + 2$$

2) Answer the following questions about the ~~horizontal~~ ^{vertical} line below.

A) What is the slope of the line shown? $m = \underline{\text{undefined}}$

B) What is the x-intercept of the line? $\underline{(4, 0)}$

C) Plot 4 points on the line and enter the ordered pairs into the table below.

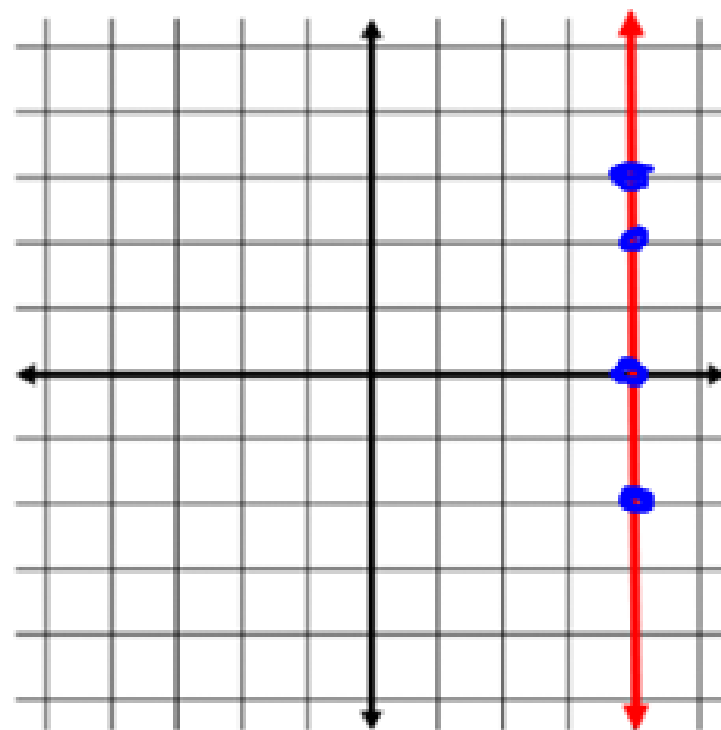
x	4	4	4	4
y	-2	0	2	4

D) Write an equation for the line shown.

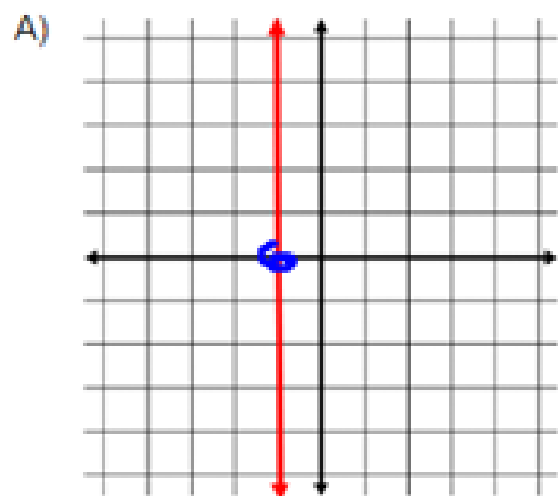
$$x = 4$$

E) Explain a rule that will be true for the equation of any vertical line.

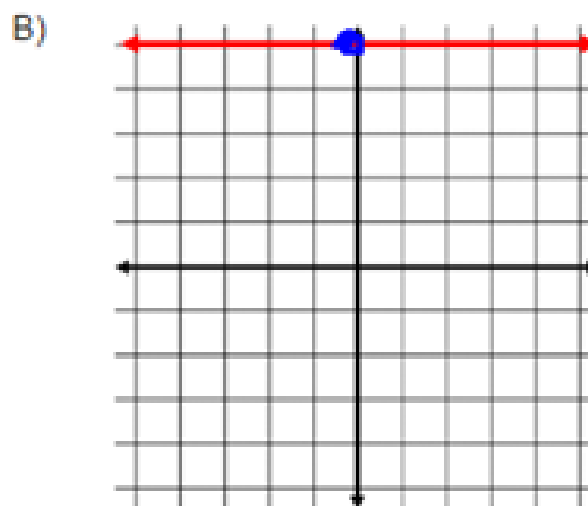
x is equal to the x-intercept



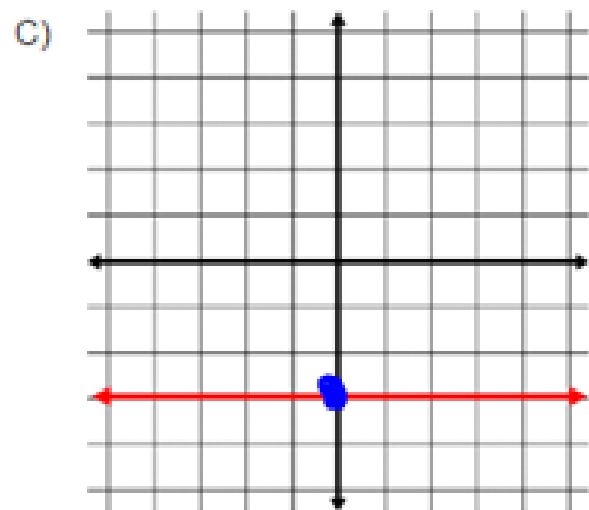
3) Write an equation in slope intercept form for the following graphs.



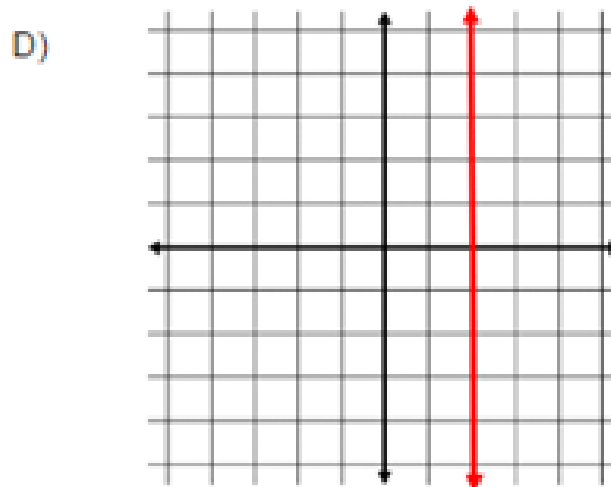
Equation = $x = -1$



Equation = $y = 5$



Equation = $y = -3$



Equation = $x = 2$

6) The table to the right represents the distance Daniel is away from home.

A) What is the slope of the table? Explain what the slope means.

hours (h)	1	3	6	7
Miles away from home (b)	800	640	400	320

B) What is the y-intercept of the table (You have to use the slope to work backwards to it.) Explain what the y-intercept means.

C) Create an equation that models this situation in slope intercept form.

E) Use your equation to find how many miles Daniel will be away from home at 10.5 hours. **SHOW WORK.**

F) Use your equation to find how many hours it will take Daniel to be 460 miles from home. **SHOW WORK.**