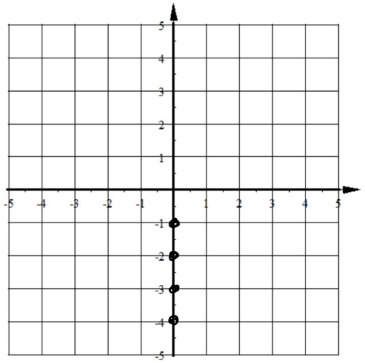


What is true about EVERY point on the y-axis?

the x-coordinate is zero

What is true about EVERY point on the x-axis?

the y-coordinate is zero

2. Use this equation: $4x + 8y = 24$

d) How could you find these intercepts from the original equation $4x + 8y = 24$ without changing the equation into Slope-Intercept Form or without graphing it?

Since the x-intercept is a point on the x-axis, the y-coordinate is zero. To find the x-intercept replace y with zero and solve for x.

Since the y-intercept is a point on the y-axis, the x-coordinate is zero. To find the y-intercept replace x with zero and solve for y.

Section 6-3: Standard Form of a Linear Equation

$$Ax + By = C$$

A, B, and C are real numbers
Both A and B can't be zero.

Find the x and y intercepts of each line.

1. $10x - 4y = 20$

x-int: $10x - 4(0) = 20$
$10x = 20$
$\frac{10x}{10} = \frac{20}{10}$
x-int = 2

y-int: $10(0) - 4y = 20$
$-4y = 20$
$\frac{-4x}{-4} = \frac{20}{-4}$
y-int = -5

2. $-12x + 8y = -28$

x - int = -28/-12 = 7/3

y - int = -28/8 = -7/2

3. $x + y = 9$

x - int = 9/1 = 9

y - int = 9/1 = 9

In general: Given the equation $Ax + By = C$

$$\text{x-int} = \frac{C}{A} \qquad \text{y - int} = \frac{C}{B}$$

Write the equation of the line that passes through this pair of points. Give your answer in Slope-Intercept Form

$y = mx + b$

(4, 1) and (-7, 1)

$$m = \frac{1-1}{4-7} = \frac{0}{11} = 0$$

$y = 0x + b$

use $(4, 1)$

$1 = 0(4) + b$

$1 = b$

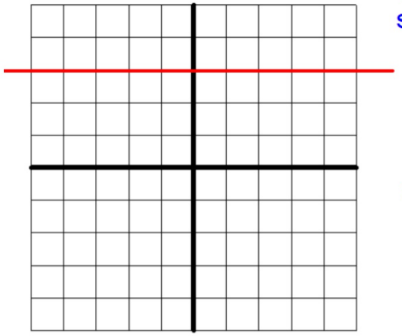
$y = 0x + 1$

$y = 1$

EQ: $y = 1$

Look at the coordinates of the two points, what do you notice?

What is true about every point on this line?



They all have the same y-coordinate

What is the slope? zero

What is the y-intercept? 3

What is the equation?

$y = 3$

The equation of every horizontal line:

$y = \#$

This number is the y-intercept or the y-coordinate of any point on the line.

What is the slope of every Horizontal Line?

Zero

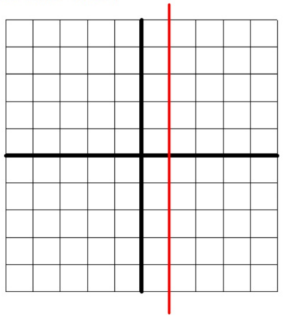
Write the equation of the line that passes through this pair of points.

(3, 5) and (3, -2)

EQ: x = 3

A vertical line is the only line that can't be written in Slope-Intercept Form

What is true about every point on this line?



They all have the same x-coordinate

What is the slope? undefined

What is the y-intercept?

There is no y-int

What is the equation?

x = 1

The equation of every vertical line:

x = #

This number is the x-intercept or the x-coordinate of any point on the line.

What is the slope of every Vertical Line?

undefined

What is the equation of each line?

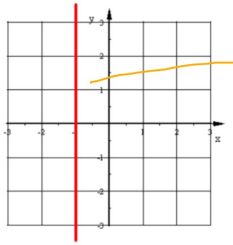
1. Passes through (-8, -4) and (11, -4)

y = -4 horizontal line

2. Slope is zero and the line passes through the point (-4, 1) y = 1

horizontal line

3.



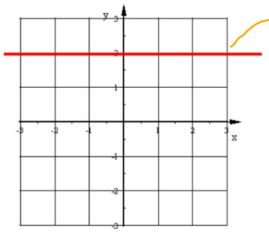
x = -1 vertical line

4. Slope is undefined and the line passes through the point (-9, 0

x = -9

vertical line

5.



horizontal line

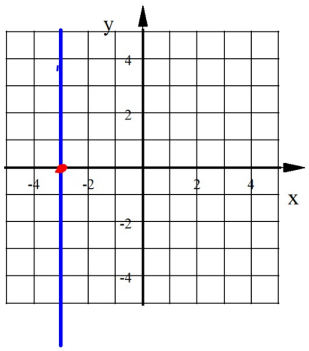
y = 2

6. Passes through (32, -9) and (32, 47)

x = 32

vertical line

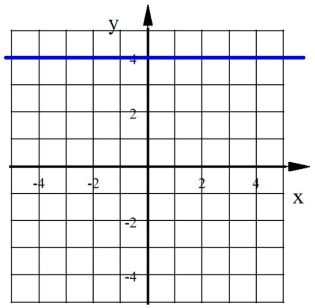
Graph this line: x = -3



vertical line where x=-3

Graph this line: y = 4

horizontal line where y=4



You can now finish Hwk #27

Sec 6-3

Pages 301-302

Problems 5-8, 10, 11, 19, 20, 36, 37, 49, 50

For 49 & 50 write eq in Slope-Intercept Form only