

### Chapter 3: Graphing Linear Functions

#### Functions

Textbook: Ch 3 section 1 p104-105

Write the definition of a function. Give examples and non-examples. Vertical line test?

Definition/Notes  
Function:

Examples:

Non-Examples:

#### Linear or Non-linear

Textbook: Ch 3 section 2 p112

<b>x</b>	1	2	3	4
<b>y</b>	5	10	15	20

Is this function linear or nonlinear?

How do you know?

Sketch an example of a nonlinear function.

#### Discrete or Continuous Domain

Textbook: Ch 3 section 2 p114

Sketch an example of each:

**Discrete:**



**Continuous:**



#### Function Notation

Textbook: Ch 3 section 3 p122

What is function notation and why do we use it?

**Evaluate:**

$$f(x) = 2x + 9$$

when  $x = -3$ , find  $f(x)$

when  $f(x) = 5$ , find  $x$

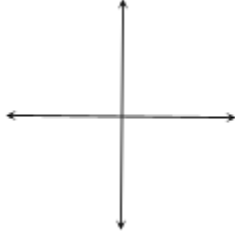
Notes:

## Graphing horizontal and vertical lines

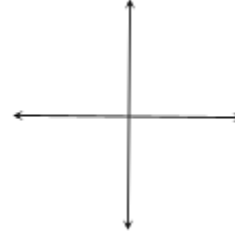
Textbook: Ch 3 section 4 p130

Write the linear equation and sketch a line to match horizontal or vertical lines.

Horizontal:



Vertical:



## Graphing in Standard Form

Textbook: Ch 3 section 4 p131

How do you find the x- and y-intercepts from *Standard Form* of a linear equation?

Use x- and y-intercepts to graph the line:

$$3x + 6y = 12$$

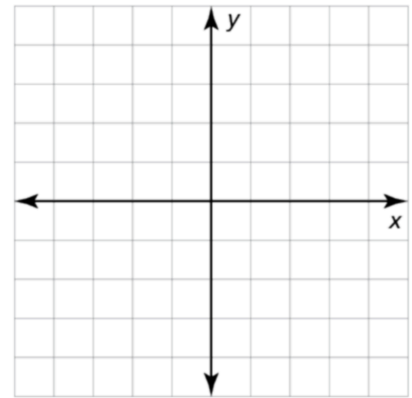
To find the x-intercept...

Graph the line using both intercepts:

x-int: ( , )

To find the y-intercept...

y-int: ( , )



## Find the slope of a line.

Textbook: Ch 3 section 5 p136

What is the slope of a line? How do you find the slope?

Define **Slope**:  $m =$

Use the slope formula to find the slope of a line containing the points (10, 8) and (21, 13)

## Graphing equations in Slope-Intercept Form

Textbook: Ch 3 section 5 p138-139

Use the slope and y-intercept to graph the line.

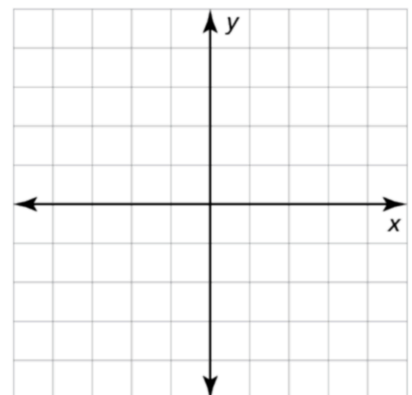
Notes:

$$y = -2x + 3$$

Slope Intercept Form:

$$m =$$

$$b =$$



## Chapter 4: Writing Linear Functions

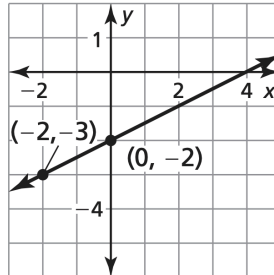
### Writing equations in Slope-Intercept Form

Textbook: Ch 4 section 1 p166

Identify the slope and intercept from a graph or a set of points

Notes:

Write an equation in *Slope-Intercept form* given the graph:



$m =$

$b =$

Write an equation in *Slope-Intercept form* given the points:

$(2, 5)$  and  $(0, 4)$

$m =$

$b =$

### Writing equations in Point-Slope Form

Textbook: Ch 4 section 2 p172

Notes:

Point-Slope Form:

Write an equation in *point slope form* given the points:

$(2, 5)$  and  $(4, 11)$

### Writing equations given two points

Textbook: Ch 4 section 2 p173 ex2

Notes:

Write an equation in *slope intercept form* given the points:

$(2, 5)$  and  $(4, 11)$

## ***Parallel and Perpendicular Lines***

***Textbook: Ch 4 section 3 p178, 179***

Identify and write equations of parallel and perpendicular lines.

**Notes: Sketch and identify the features of each set of lines-**

**Parallel:**

**Perpendicular:**

What is the *slope* of a line that is **parallel** to the line  $y = -3x + 1$  ?

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What is the *slope* of a line that is **perpendicular** to the same line?

\_\_\_\_\_

Write an equation of a line *parallel* to  $y = 2x - 8$  and contains the point  $(3, 5)$