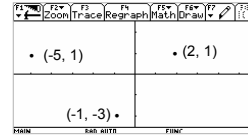


# Slopes and Equations of Lines

## Lesson 1.1

### The Plot Thickens

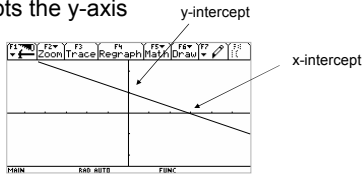
- We plot ordered pairs ( \_\_\_\_\_, \_\_\_\_\_ )



- Where would we plot (4, -2)?

### Line 'em Up

- A line is a \_\_\_\_\_ of points
  - When the x-coordinate is \_\_\_\_\_ it intercepts the y-axis

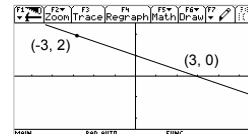


- When the y-coordinate is zero, it intercepts the \_\_\_\_\_

### Slope of a Line

- Represents the "steepness" of a line
  - Measured by the change in the y-value divided by the change in the x-value

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



### Equations of a Line

- Slope-Intercept Form

$$y = m \cdot x + b$$

- Point-Slope Form

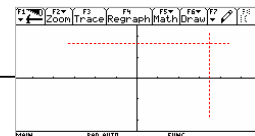
$$y - y_1 = m \cdot (x - x_1)$$

### Horizontal, Vertical Lines

- Horizontal lines

$$y = 12$$

- Note: slope is \_\_\_\_\_



- Vertical lines

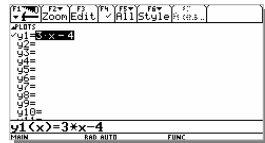
$$x = 7$$

- Note: slope is \_\_\_\_\_

## Graphing Lines on the TI Calculator

- We wish to graph the equation  

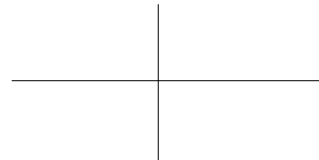
$$y = 3x - 4$$
- Go to the Y= screen – use  $\blacklozenge$ W or  $\blacklozenge$ F1
- Enter the function on the entry line



- It appears in the list

## Graphing Lines on the TI Calculator

- Now specify the standard zoom F2 and 6
- Function will graph on axes



## Parallel and Perpendicular Lines

- Parallel lines have the \_\_\_\_\_ slope  

$$y = \frac{2}{3}x - 7$$
  

$$y = \frac{2}{3}x + 5$$
- \_\_\_\_\_ lines have slopes that are negative reciprocals
- Graph these to verify, use Zoom-Square

## Try It Out

- Find the equation of a line through (2, -5) and parallel to  $y = 2x + 4$
- Find the equation of a line with x-intercept of  $-2/3$  and perpendicular to  $2x - 3y = 5$
- A business has sales of \$27,000 in its 2<sup>nd</sup> year, \$63,000 in 5<sup>th</sup> year. Let  $y$  be the sales for the  $x^{\text{th}}$  year. Assume the data can be approximated by a st. line. Determine an equation for the sales
  - Use your answer to find out how many years until sales surpass \$100,000

## Assignment

- Lesson 1.1
- Page 14
- Exercises 1 – 59 EOO, 61, 71, 75