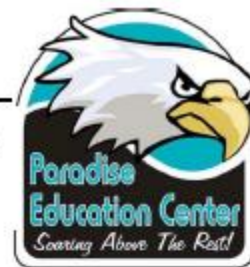


# Lesson 5.4 Graphing Linear Equations Day 1

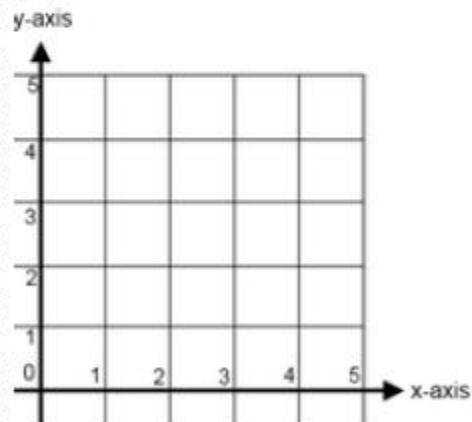
Week 1 Tuesday Course 3 Warm-up



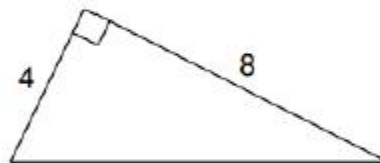
Two bowls and one cup have a mass of 800 grams. One bowl and two cups have a mass of 700 grams. Find the mass of a bowl and the mass of a cup.

Finding Distance

Find the distance between the two points  $X(1,1)$  and  $Y(5,5)$ .



Find each missing length to the nearest tenth.



# Lesson 5.4 Graphing Linear Equations Day 1

## Week 1 Tuesday Course 3 Warm-up



Two bowls and one cup have a mass of 800 grams. One bowl and two cups have a mass of 700 grams. Find the mass of a bowl and the mass of a cup.

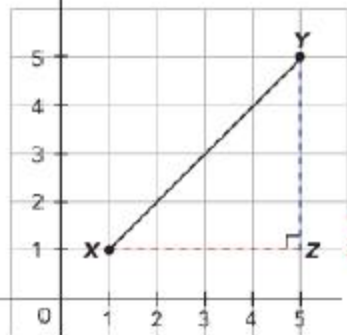
$$2b + c; 800$$

$$b + 2c; 700$$

300; 200

### Finding Distance

Find the distance between the two points  $X(1,1)$  and  $Y(5,5)$ .



$$XZ^2 + YZ^2 = XY^2$$

$$4^2 + 4^2 = XY^2$$

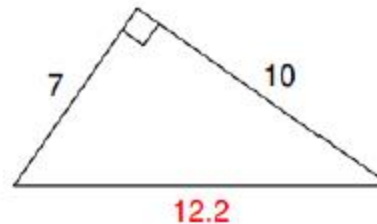
$$16 + 16 = XY^2$$

$$32 = XY^2$$

$$\sqrt{32} = XY$$

$$XY \approx 5.7 \text{ units}$$

Find each missing length to the nearest tenth.



# Lesson 5.4 Graphing Linear Equations Day 1

## Objective

TSW solve systems of linear equations by finding the unique solution using the following strategy...

- \*Elimination Method
- \*Substitution Method
- \***Graphical Method**



▶ A system of linear equations may have a unique solution. It can be solved using the elimination, substitution, or graphical methods.

## Common Core State Standards

8EE 8a Understand that solutions to a system...satisfy both equations simultaneously. 8EE 8 b Solve Systems of two linear equations in two variables algebraically

**Mathematical Practices** 2 Reason 3 Construct arguments 4 Model Mathematics

# Lesson 5.4 Graphing Linear Equations Day 1

## Vocabulary Review

### Slope

Visual Example: What I Think

The ratio of the rise, or vertical change, to the run, or horizontal change, between any two points on a non-vertical line on the coordinate plane.

**Comparing My Thoughts**

### Slope Intercept Form

Visual Example: What I Think

A form of a linear equation,  $y = mx + b$ , where  $m$  is the slope and  $b$  is the  $y$  intercept of the graph of the equation.

**Comparing My Thoughts**

# Lesson 5.4 Graphing Linear Equations Day 1


## Vocabulary Review

### Slope

Visual Example: What I Think

The ratio of the rise, or vertical change, to the run, or horizontal change, between any two points on a non-vertical line on the coordinate plane.

### Comparing My Thoughts



$$\frac{\text{RISE}}{\text{RUN}} = \frac{\text{vertical change}}{\text{horizontal change}} = \frac{y}{x}$$

Slope describes the steepness of line. Several types of slope (positive, negative, vertical, horizontal). You can find the slope from a table, from graph (counting rise over run), from equation ( $y=mx + B$ ), or any two points and the slope formula.

From a Table	From a Graph
<ol style="list-style-type: none"> <li>1. Find the coordinates of two points on the line.</li> <li>2. Calculate the slope using the formula <math>m = \frac{y_2 - y_1}{x_2 - x_1}</math>.</li> </ol>	<ol style="list-style-type: none"> <li>1. Choose two points on the line.</li> <li>2. Count the rise and run between the two points.</li> <li>3. Write the slope as a fraction.</li> </ol>
<ol style="list-style-type: none"> <li>1. Write the equation of the line in slope-intercept form: <math>y = mx + b</math>.</li> <li>2. Identify the slope <math>m</math>.</li> <li>3. Write the slope as a fraction.</li> </ol>	<ol style="list-style-type: none"> <li>1. Write the equation of the line in slope-intercept form: <math>y = mx + b</math>.</li> <li>2. Identify the slope <math>m</math>.</li> <li>3. Write the slope as a fraction.</li> </ol>
From an Equation	From Two Points

Given two points:

$(x_1, y_1)$   $(x_2, y_2)$

Slope Formula:

$$\frac{y_2 - y_1}{x_2 - x_1}$$

$$x_2 - x_1$$


### Slope Intercept Form

Visual Example: What I Think

A form of a linear equation,  $y=mx+b$ , where  $m$  is the slope and  $b$  is the  $y$  intercept of the graph of the equation.

### Comparing My Thoughts

Slope-Intercept Form:  $y = mx + b$



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

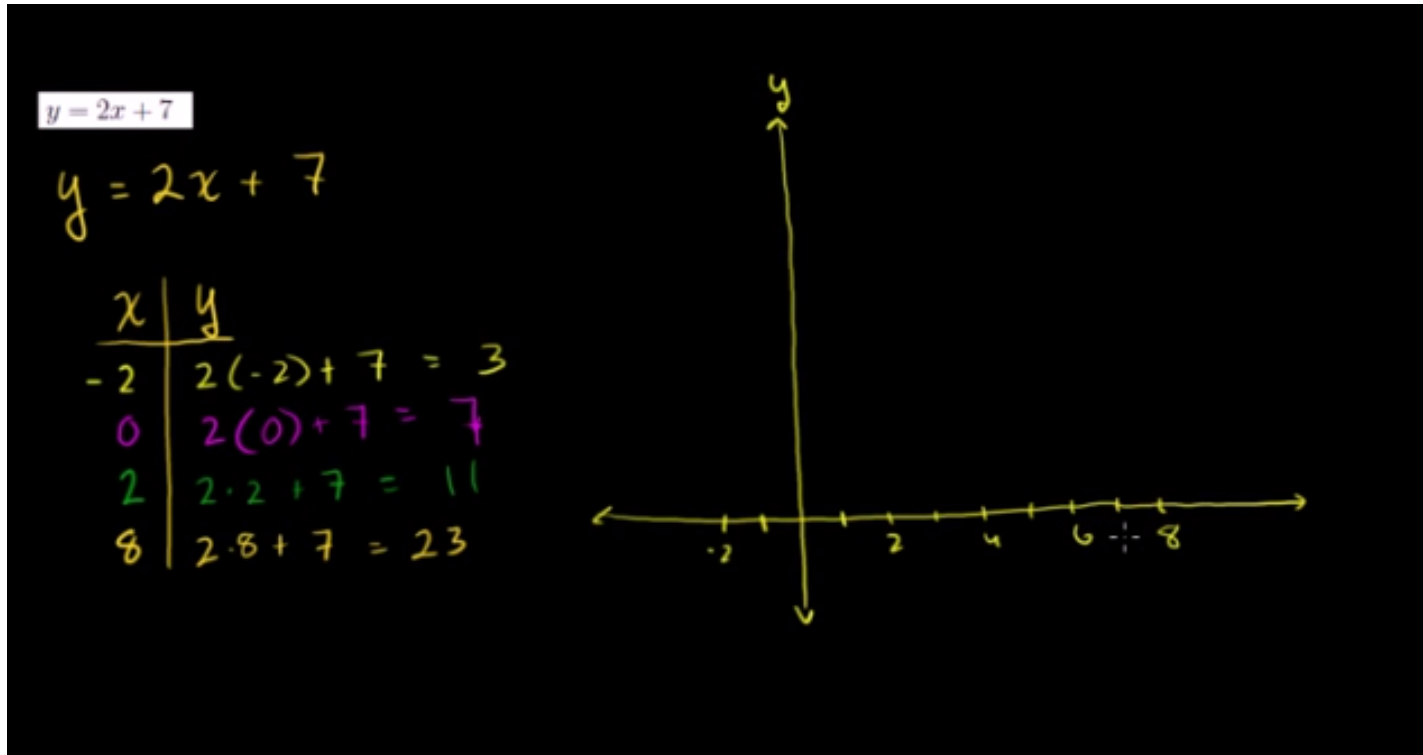
Diagram showing the equation  $y = mx + b$  with arrows pointing from  $m$  to "slope" and from  $b$  to "Y-Intercept".

# Lesson 5.4 Graphing Linear Equations Day 1

## How to Graph Linear Equations Using Table

Method 1- Create a Table of Values

$$y=2x+7$$



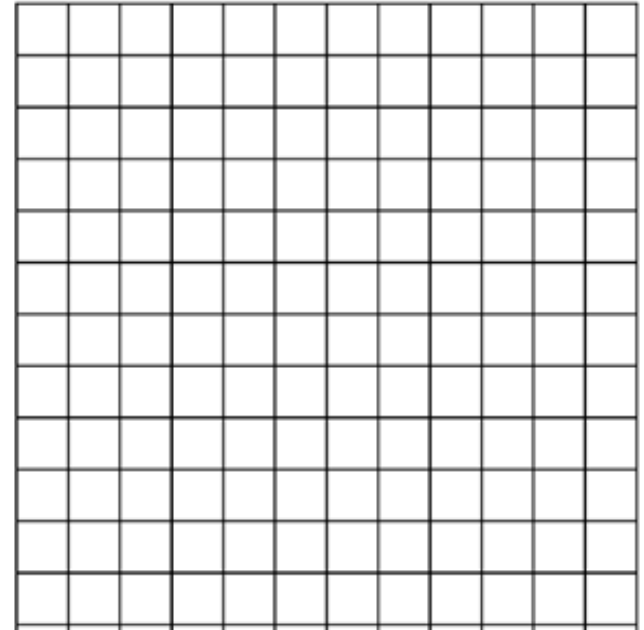
[https://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing\\_solutions2/v/graphs-of-linear-equations](https://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_solutions2/v/graphs-of-linear-equations)

# Lesson 5.4 Graphing Linear Equations Day 1

## How to Graph Linear Equations Using M and B

Method 1- Using Slope Intercept Form

$$y=2x+7$$



## Lesson 5.4 Graphing Linear Equations Day 1

### Guided Practice

- 1 Graph the equation  $y = \frac{3}{2}x + 1$ .

Table of Values

Slope Intercept Form



## Lesson 5.4 Graphing Linear Equations Day 1

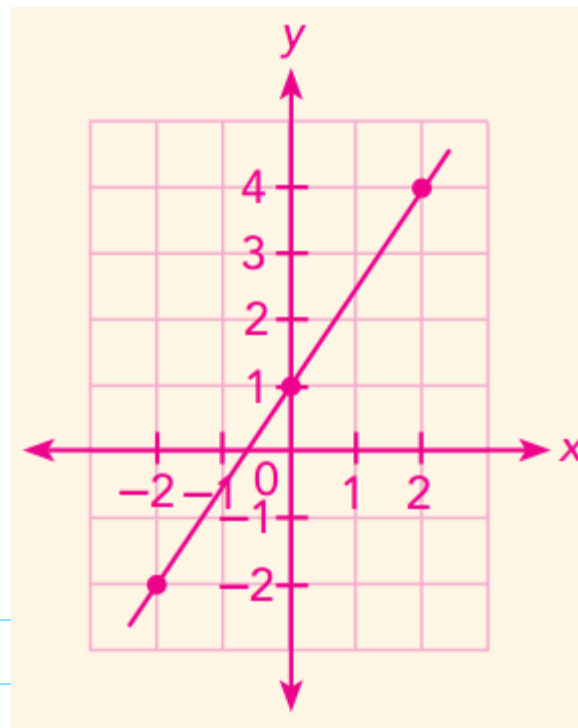
### Guided Practice

- 1 Graph the equation  $y = \frac{3}{2}x + 1$ .

Table of Values

x	-2	0	2
y	-2	1	4

Slope Intercept Form

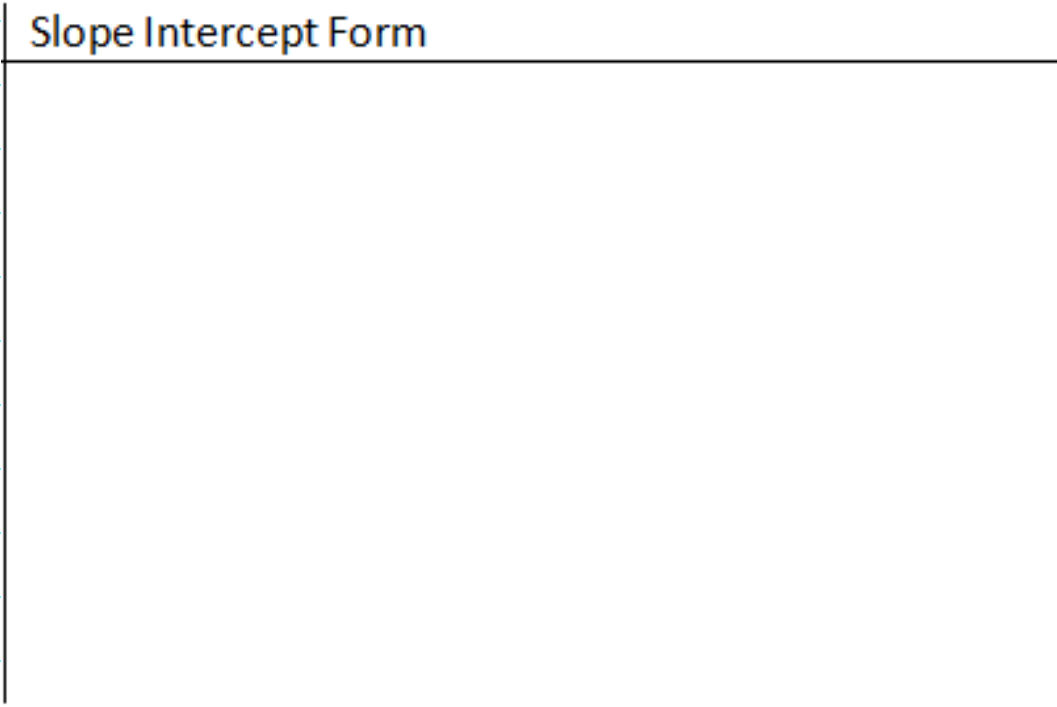


## Lesson 5.4 Graphing Linear Equations Day 1

### Guided Practice

Graph the equation  $y = -\frac{1}{2}x - 3$ .

Slope Intercept Form

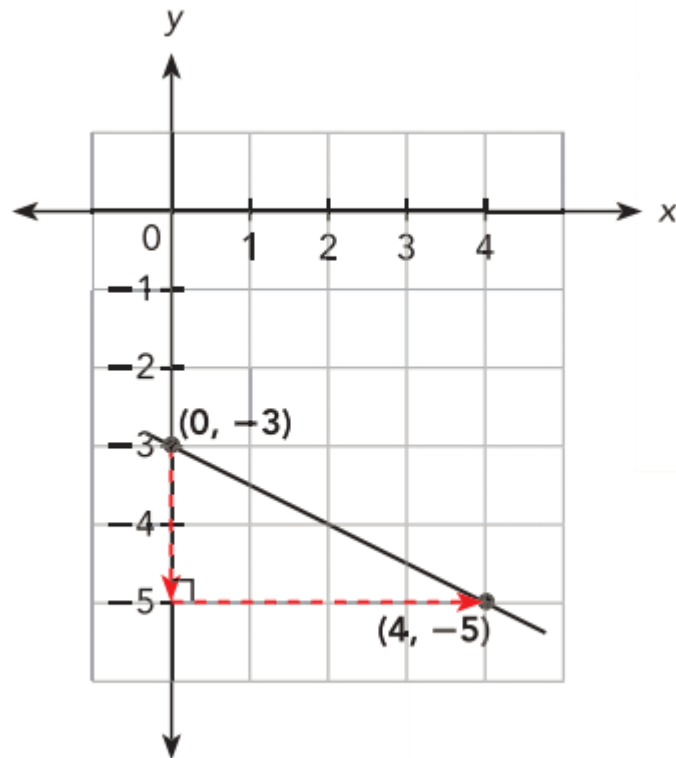


## Lesson 5.4 Graphing Linear Equations Day 1

### Guided Practice

Graph the equation  $y = -\frac{1}{2}x - 3$ .

Slope Intercept Form



## Ticket Out the Door-

*How do you graph linear equations?  
Which method do you prefer? Why?*