# Lesson 5.1 Solving Systems of Linear Equations Using Tables
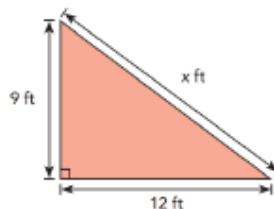
Week 1 Wednesday Course 3 Warm-up

Find the Slope
((19, -16) (-7, -15)

Merlin wants to put a fence around a right triangular garden. He measures two sides. Find the length of the unknown side.



Pythagorean Theorem

9 ft

x ft

12 ft

Simplify the Expression
Write in Exponential Notation

$$\frac{\left[\left(\frac{3}{5}\right)\cdot\left(\frac{3}{5}\right)^3\right]^4}{\left[\left(\frac{3}{5}\right)^2\right]^2}$$

Simplify Expression
Write as positive exponent

$$\frac{6^3 \cdot 15^3}{(7^0)^3}$$

# Lesson 5.1 Solving Systems of Linear Equations Using Tables

## Week 1 Wednesday Course 3 Warm-up

**Find the Slope**
(19, -16) (-7, -15)

$$\frac{-15 - -16}{-7 - 19} = \frac{1}{-26}$$

Given two points:
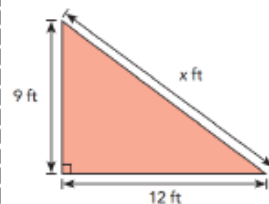
$(x_1, y_1)$  $(x_2, y_2)$

Slope Formula:

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

Paradise Education Center
Soaring Above The Rest!

Merlin wants to put a fence around a right triangular garden. He measures two sides. Find the length of the unknown side.

9 ft    x ft    12 ft

**15**

Pythagorean Theorem

**Simplify the Expression**
**Write in Exponential Notation**

$$\frac{\left[\left(\frac{3}{5}\right) \cdot \left(\frac{3}{5}\right)^3\right]^4}{\left[\left(\frac{3}{5}\right)^2\right]^2}$$

$$\left(\frac{3}{5}\right)^{12}$$

**Simplify Expression**
**Write as positive exponent**

$$\frac{6^3 \cdot 15^3}{(7^0)^3}$$

$$90^3$$

# Lesson 5.1 Solving Systems of Linear Equations Using Tables

## Objective

TSW solve systems of
linear equations by finding
the unique solution using the
following strategy…
*Creating a  table

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

**BIG IDEA**

**Common Core State Standards**

8EE 8a Understand that solutions to a system…satisfy both equations simultaneously.

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

# Create Vocabulary T-Chart

| Definition | Visual |
|---|---|

**Linear Equation**

An equation between two variables that gives a straight line when plotted on a graph



$y = mx + b$

Intercept

$b$

$b$

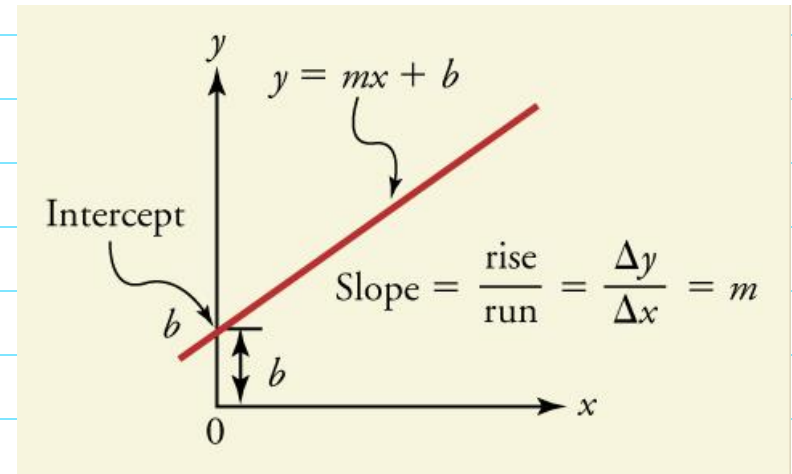$\text{Slope} = \dfrac{\text{rise}}{\text{run}} = \dfrac{\Delta y}{\Delta x} = m$

**Systems of Linear Equations**
(Use Glossary to write definition)

**Unique Solution**
(Use Glossary to write definition)

# Create Vocabulary T-Chart

| <span style="color:red">**Definition**</span> | <span style="color:red">**Visual**</span> |
|---|---|
| **Linear Equation** An equation between two variables that gives a straight line when plotted on a graph |  |
| **Systems of Linear Equations** A set of linear equations that has more than one variable. |  |
| **Unique Solution** The single set of values that satisfies a system of linear equations | $$x - 2y = 0$$ $$x + y = 6$$ |

**How to Solve System of Linear Equation by making table.**

1). Substitute Values for x

2). Input in Table of Values

3.) Find the Unique Solution (Same in both tables)

**Guided Practice**

**1** A bottle of water and a taco cost $3. The cost of 3 bottles of water is $1 more than the cost of a taco. Let $x$ be the price of a bottle of water and $y$ be the price of a taco in dollars. The related system of equations and tables of values are:

$$3x - y = 1$$
$$x + y = 3$$

| x | 1 | 2 |
|---|---|---|
| y | ? | ? |

| x | 1 | 2 |
|---|---|---|
| y | ? | ? |
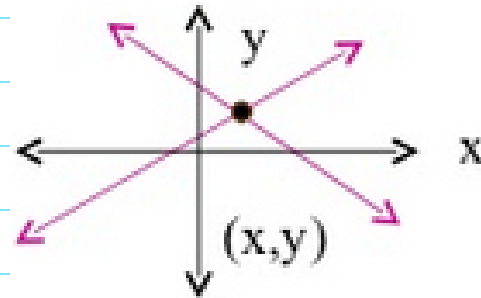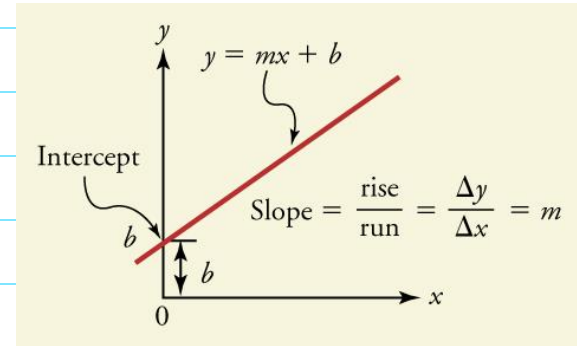
# Lesson 5.1 Solving Systems of Linear Equations Using Tables

**How to Solve System of Linear Equation by making table.**
1). Solve for x
2). Input in Table of Values
3.) Find the Unique Solution (Same in both tables)
**Guided Practice**

**1** A bottle of water and a taco cost $3. The cost of 3 bottles of water is $1 more than the cost of a taco. Let x be the price of a bottle of water and y be the price of a taco in dollars. The related system of equations and tables of values are:

$$3x - y = 1$$
$$x + y = 3$$

| x | 1 | 2 |
|---|---|---|
| y | ? | ? |

| x | 1 | 2 |
|---|---|---|
| y | ? | ? |

Only the pair of values x = __?__ and y = __?__ appear in both tables. 1; 2
So, the solution to the system of equations is x = __?__, y = __?__. 1; 2

The cost of a bottle of water is $__?__ and the cost of a taco is $__?__. 1; 2

Solve each system of linear equations by making tables of values. Each variable $x$ is a positive integer less than 6.

**1** $2x + y = 5$
$x - y = -2$

**2** $x + 2y = 4$
$x = 2y$

**3** $3x + 2y = 10$
$5x - 2y = 6$

Solve each system of linear equations by making tables of values. Each variable $x$ is a positive integer less than 6.

**1** $2x + y = 5$
$x - y = -2$  $x = 1, y = 3$

**2** $x + 2y = 4$
$x = 2y$  $x = 2, y = 1$

**3** $3x + 2y = 10$
$5x - 2y = 6$  $x = 2, y = 2$

Independent Practice #7-10          Challenge-

*Solve created equations

"Pick a Snowflake"

*Create Word-toon for vocabulary words





✓ Lesson Check –#2 Can solve systems of equation by making tables of values.