

Solutions to Linear Equations in One Variable

The _____ of an equation is the value(s) of the variable(s) that make the equation a true statement.

- Equations in one variable can have _____ solution, _____ solutions or _____ solution.

	One Solution	Infinite Solutions	No Solution
Reasoning: <i>What the type of solution means.</i>	Only _____ value will make the equation <u>true</u> . ★ _____	_____ value will make the equation <u>true</u> . ★ _____	_____ values will make the equation <u>true</u> . ★ _____
True Solution? <i>Always, Sometimes, Never</i>	_____ A conditional equation is true for <u>some</u> values of x . _____ _____	_____ An identity is <u>always</u> true, for any value of x . _____ _____	_____ A contradiction is <u>never</u> true for any value of x . _____ _____
Example:	$4x + 6 = 18$ _____ _____ _____ ★ _____ is the only number that makes the equation <u>true</u> .	$5x + 15 = 5x + 15$ _____ _____ ★ _____ for x will make the equation <u>true</u> .	$4x + 8 = 4x + 3$ _____ _____ ★ _____ for x will make the equation true.
Hints: <i>Look at both sides of the equation.</i>	End result still has a _____ and a _____.	Variables cancel each other out and <u>both sides</u> of the equation _____.	Variables cancel each other out and <u>both sides</u> of the equation _____.

Determining the Type of Solution

	One Solution	Infinite Many Solutions	No Solution
Simplified Equation	$3x - 5 = 7x + 3$	$2 + 4x = 4x + 2$	$8x + 9 = 8x - 5$
Look at the Variable Terms.	The variable terms are _____.	Variable terms are the _____. Both sides _____.	Variable terms are the _____. Both sides _____.

Example One:

$$2(4x + 5) = 5(2x + 4)$$

_____ both sides of the equation.

← Variable terms are _____.

★ Equation can be _____.

The equation has _____. The solution means _____.

Example Two:

$$2(5x + 4) - 11 = 4x + 3(2x - 1)$$

_____ both sides of the equation.

← Variable terms are _____.

and both sides are _____.

The equation has _____. The solution means _____.

Example Three:

$$-4x + 3(5x + 6) = 7(2x + 1) - 3x$$

_____ both sides of the equation.

← Variable terms are _____.

and both sides are _____.

The equation has _____. The solution means _____.

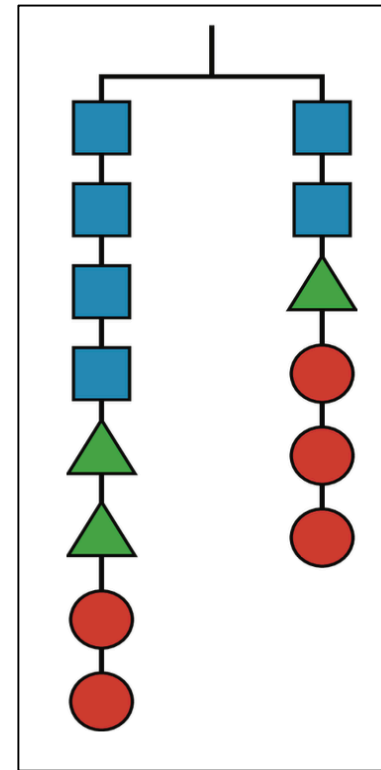
Use the following **Systems of Equations** with your worksheet. Each will match a given solution or graph.

$y = -\frac{4}{3}x - 6$ $y = -x - 4$	$y = -x - 4$ $y = \frac{1}{3}x - 2$
$y = x$ $y = \frac{1}{3}x + 4$	$y = -x$ $y = \frac{1}{3}x + 4$
$y = \frac{4}{3}x - 2$ $y = -\frac{1}{3}x - 7$	$y = -\frac{4}{3}x - 2$ $y = \frac{1}{3}x - 7$
$y = \frac{4}{3}x - 6$ $y = -x + 4$	$y = -\frac{2}{3}x + 4$ $y = \frac{1}{3}x - 2$

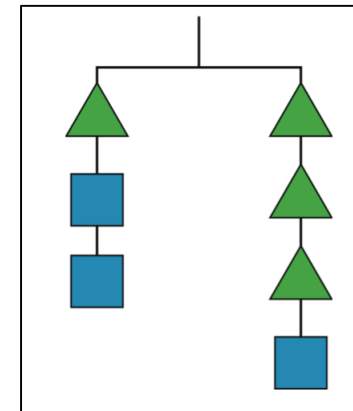
Use the following **Solutions** with your worksheet. Each will be the intersection of two lines in a System of Equations or in a graph.

(6, -2)	(-3, -6)
(3, -3)	(3, 6)
(-6, 2)	(3, 3)
(-3, 3)	(6, 0)
(0, 6)	(6, 3)

Study Guide for Unit 4 Test



Each triangle weighs 2.5 pounds, each circle weighs 3 pounds, and x represents the weight of each square. Write an equation showing the value of each side, then solve for the weight of a square.



What is the weight of a square if a triangle weighs 4 grams?

Write an equation that represents the hanger, then solve and explain your reasoning.