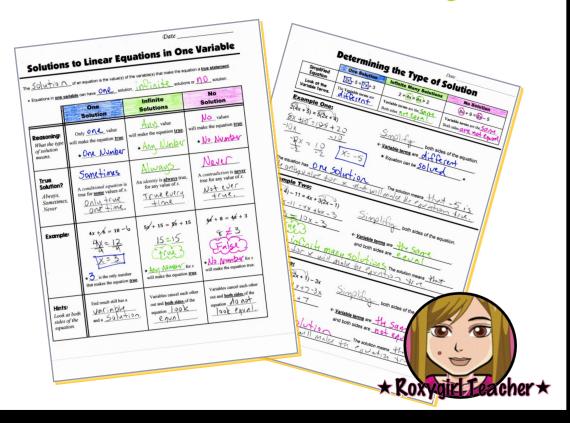
# 8th Grade Math Guided Notes

Solutions to Equations in One Variable One Solution, Infinite Many Solutions, No Solution

Two Guided Color-coded
Interactive Math Notebook Pages



## Solutions to Linear Equations in One Variable

The	of an equation is the	value(s) of the variab	ole(s) that make the ed	quation a true statement.
• • • • • • • • • • • • • • • • • • • •	o. a o q a.a	(a) a a a a a a a a a a a a a a a a a a	(5)	1

• Equations in one variable can have \_\_\_\_\_ solution, \_\_\_\_ solutions or \_\_\_\_ solution.

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

0/4.	\	_	10.	_	4)
2(4x)	$+$ $\circ$	= 5	<b>IZX</b>	+	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.

← <u>Variable terms</u> are \_\_\_\_\_\_ .

and both sides are \_\_\_\_\_

The equation has \_\_\_\_\_\_. The solution means \_\_\_\_\_\_.

## Solutions to Linear Equations in One Variable

The 50 vtio of an equation is the value(s) of the variable(s) that make the equation a true statement.

• Equations in one variable can have one solution, in the solutions or No solution.

	One Solution	Infinite Solutions	No Solution
Reasoning: What the type of solution means.	Only One value will make the equation true.  * One Ninber	Any value will make the equation <u>true</u> .  * Any Ulnby	No_values will make the equation <u>true</u> .  ★ No Nomber
True Solution? Always, Sometimes, Never	Sometimes  A conditional equation is true for some values of x.  Only true  One time.	Always An identity is always true, for any value of x.  True luly	Notes  A contradiction is never true for any value of x.  Note December 1997
Example:	4x + 6 = 18 - 6 $2x = 12$ $x = 3$ $x = 3$ is the only number that makes the equation <u>true</u> .	5x + 15 = 5x + 15 $15 = 15$ $+ 15 = 5x + 15$ $+ 15 = 5$	4x + 8 = 4x + 3 $4x + 8 = 4x + 3$ $4x + 8 = 4$
Hints: Look at both sides of the equation.	End result still has a  Vacinble and a 50 4100.	Variables cancel each other out and both sides of the equation 100 k	Variables cancel each other out and both sides of the equation 10 not

## **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 Same.  Both sides Are Egial.	Both sides are not equal

**Example One:** 

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

$$8x + 10 = 19x + 20$$

Simplify both sides of the equation.

← Variable terms are different

★ Equation can be 50 Ued

The equation has <u>One Solution</u>. The solution means that -5 is the only valve for x that will make the equation tive.

**Example Two:** 

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

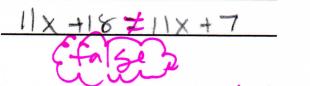
Simplify both sides of the equation.

 $\frac{10 \times -3 = 10 \times -3}{\text{CTrue}} \leftarrow \frac{\text{Variable terms}}{\text{and both sides are}} \text{ and both sides are}$ 

The equation has infinite many solutions. The solution means that

Example Three:

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



Simplifus both sides of the equation.

The equation has no solution. The solution means that nound make the equation the



### Thank you for downloading



#### RoxyGirl Teacher's Rockstar Teaching Resources.

I hope this resource makes your math lesson "Rock".

I would love for you to follow me at my TPT store, my math blog, Twitter, or Instagram. :o)

- ★ http://www.teacherspayteachers.com/Store/RoxyGirl-Teacher
- ★ http://rockstarmathteacher.blogspot.com/
- **★** @RoxyGirlTeacher

Contact me at:

roxygirlteacher@gmail.com



Copyright © 2011 RoxyGirl Teacher: Rockstar Teaching Resources All rights reserved by author.

Permission to copy for single classroom use only.

Not for public display.

Putting any part of this product on the internet in any form is strictly forbidden.