WARM WELCOME



Today we will determine whether a linear equation has one solution, no solution, or infinitely many solutions.



We know how to plug in values to see if they make the equation true.

Decide if the equation, x + 1 = 3, is true for...

$$...x = 1?$$

$$...x = 2?$$

$$...x = 3?$$

Can you think of any other values that work?



Some equations have more than one solution, and some equations have no solution.

Decide if the equation, x + 1 = x + 1, is true for...

$$...x = 1?$$

...
$$x = 2$$
?

$$...x = 3?$$

Can you think of any other values that work?

Decide if the equation, x + 1 = x + 2, is true for...

$$...x = 1?$$

$$...x = 2?$$

$$...x = 3?$$

Can you think of any other values that work?



We can tell how many solutions an equation will have depending on how it looks when it is simplified.

Equations like x = 1 or x = 2 or x = 3 have ____ solution.

Equations like **x** = **x** or **0** = **0** or **2** = **2** or **100** = **100** are ______ true so they have a solution. We say they have _____ solution(s).

Equations like **0** = **1** or **2** = **4** or **100** = **7** are ______ true so they _____ have a solution. We say they have _____ solution(s).



We must try to solve the equation to get it in a form where we can tell how many solutions it has.

Select how many solutions each equation has.

$$4(x + 2) = x - 3 + 3x$$

$$3x - 10 + 4 = 3(x - 2)$$

This system has...

- (a) No solution
- (b) One solution
- (c) Infinitely many solutions

This system has...

- (a) No solution
- (b) One solution
- (c) Infinitely many solutions



Let's explore more equations together!

Name:			G8 U4 Less	on 6 - Let's Try I
Use the equati	ions to fill in the se	ntences.		
	2 = 2	-8 = -8	0 = 0	
1. Equations lik	e the ones below ar	e	_ true which means there is	solutior
2. In these case	es, we say there are	0	solution(s).	
	2 = 1	4 = -4	0 = 1	
3. Equations lik	e the ones below ar	e	_ true which means there is	solution
4. In these case	es, we say there are	·	solution(s).	
			n, one solution or infinitely ma	
1. 3x + 7 + 3x	x = 1 + 2(x + 3)	3(x+x)=-	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	= 10 - 1(6x + 1)



Now it's time for you to do it on your own!

Solve for the variable in each equ		1.0
1. x = x	2. x + x = 2	3. x = x + 1
This system has	This system has	This system has
(a) No solutions	(a) No solutions	(a) No solutions
(b) One solution(c) Infinitely many solutions	(b) One solution (c) Infinitely many solutions	(b) One solution (c) Infinitely many solutions
3x + 9 = 12 + 3x	5. 4 - 2x = -2x + 4	6. 9 - 3x = 4x - 5