

# DIGITS 2-4

10/31/2019

## One, None, Infinite Solutions

Goal: I will be able to **solve equations with one, none, and many solutions.**

Tool Bag  
Formulas, equations,  
Vocabulary, etc

Here's How... Notes & Examples

Example  $3x + 4 = 2(x + 3)$   
 $3x + 4 = 2x + 2(3)$   
 $3x - 2x + 4 - 4 = 2x - 2x + 6 - 4$   
 $x = 2$

Check  $3(2) + 4 = 2(2 + 3)$   
 $6 + 4 = 2(5)$   
 $10 = 10 \checkmark$

Example  $2x + 6 = 2(x + 3)$   
 $2x + 6 = 2x + 2(3)$   
 ~~$2x - 2x + 6 - 6 = 2x - 2x + 6 - 6$~~   
 $0 = 0$

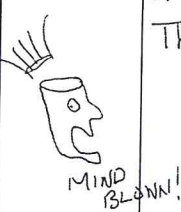
$x = 0$   $2(0) + 6 = 2(0 + 3)$   
 $0 + 6 = 2(3)$   
 $6 = 6 \checkmark$

$x = 6$   $2(6) + 6 = 2(6 + 3)$   
 $12 + 6 = 2(9)$   
 $18 = 18 \checkmark$

$x = -4$   $2(-4) + 6 = 2(-4 + 3)$   
 $-8 + 6 = 2(-1)$   
 $-2 = -2 \checkmark$

$x$  can be ANY number!

Example  $3x + 4 = 3(x - 2)$   
 $3x + 4 = 3x - 3(2)$   
 ~~$3x - 3x + 4 - 4 = 3x - 3x - 6 - 4$~~   
 $0 = -10$   
 WHAT?!?! This makes NO sense!  
 There is NO solution (answer).



MIND BLOWN!

There are 3 possible solutions for equations

One Solution  
You get  $x$  equals a number  
example  $x = 2$

Infinite Solutions  
You get a "TRUE" statement, and  $x$  can be ANY number.  
example  $0 = 0$   $6 = 6$   $x = x$

No Solution  
You get a "FALSE" statement, so there is no answer for  $x$   
example  $0 = -10$