

DIGITS 2-4

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

What happens if we solve an equation and don't get an answer?

Examples

$x=0$
 $x=-1$
 $x=2$
 $y=-2$
 $y=x$

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

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

check:
 $3(2)+4=2(2+3)$
 $6+4=2\cdot5$
 $10=10 \checkmark$

b) $2x+6=2(x+3)$

$x=x$
 $2\cdot x+6=2(x+3)$
 $2x+6=2x+6$
 $2x+6-6=2x+6-6$
 $2x=2x$
 $\frac{2x}{2}=\frac{2x}{2}$
 $x=x$
 $2(-4)+6=2(-4+3)$
 $-8+6=2(-1)$
 $-2=-2 \checkmark$

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

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

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

$x=4$ $2(4)+6=2(4+3)$
 $8+6=2(7)$
 $14=14 \checkmark$

$x=-4$

Mind Totally Blown!!!

c) $3x+4=3(x-2)$
 $3x+4=3x-3(2)$
 $3x-3x+4=3x-3x-6$
 $4=-6$ What?!?!?!?

There is NO answer.
This cannot happen

3 Possible Classifications of Equations

One Solution
You get $x = \text{a number}$

Infinite Solutions
You get $x=x$ or $6=6$ or $4=4$ a true statement

No Solution
You get a false statement
 $4=-6$