Multi Step Problems

11/21
Goal: Decipher problems and identify type of solution

Solutions will not always be one answer---Be Careful

Null Set/Empty Set means there is NO SOLUTION { } or $\varnothing$

Identity Set means there are many solutions

$x = x$
$24 = 24$
$1 = 1$

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Example:

$2(5 + x) + 21 = 5(x + 2) + 21$

$10 + 2x + 21 = 5x + 10 + 21$

$31 + 2x = 5x + 31$
$-31 \quad -31$
$2x = 5x$
$-2x \quad -2x$
$0 = 3x$ Since 0 can not = 3x the answer is null set or { }

$\frac{0}{3} = \frac{3x}{3}$

$0/3 = x$

$\emptyset$, { }, Null Set

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

$6x+10 = 10x - 20 - 4x$ combine like terms

$6x+10 = 6x-20$

$+20 \quad +20$

$6x+30 = 6x$

$-6x \quad -6x$

$30 \neq 0$

Null Set

$U \neq \{\}$

$6x+10=6x-20$

$+20 \quad +20$

$6x+30=6x$

$-6x \quad -6x$

$30 = 0$

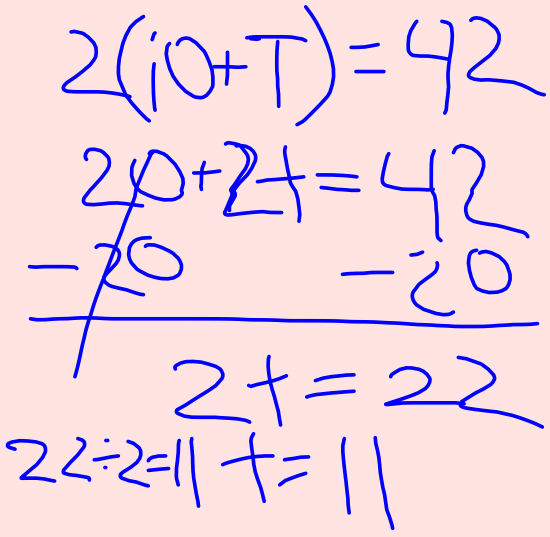
Another Example

2 (10 + T) = 42

20 + 2T = 42
-20 -20

2T = 22
2 2

T = 11 One answer solution



one solution

Last example:

$3(4x + 8) = 2(6x + 12)$

$12x + 24 = 12x + 24$

$-24 \qquad -24$

Check with any #

$\frac{12x}{12} = \frac{12x}{12}$

$x = x$

$x = x$ Identity Set all numbers