Linear Equations Involving Multiple Steps

To understand the proper steps in solving a linear equation, always remember that the ultimate goal is to isolate the variable.

Solve the equations. 2. $-3b - \frac{2}{3} = 4$ 1. 7z + 5 = -9same as 7==-9-5 3. -2v + 5 = 3v - 200.3y - 0.5y = 20 - 3-0.2y=12 -5v = -25 $-0.2y = \frac{12}{-0.2}$ $\frac{-54}{-5} = \frac{-15}{-5}$ y= 12 (10)

Procedure for Solving a Linear Equation in One Variable

To solve an equation requiring multiple steps:

- 1. Simplify both sides of the equation.
- 2. Apply the addition or subtraction property of equality to collect the variable terms on one side of the equation.
- 3. Apply the addition or subtraction property of equality to collect the constant terms on the other side of the equation.
- **4.** Use the multiplication or division property of equality to obtain a coefficient of 1 on the variable.

5.
$$6-(2x-3)=-5x+18$$
 $6-(2x-3)=-5x+18$
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 $6-(2x-3)=-5x+18$
 $6-(2x-3)=-5x+18$
 $9-2x+3=-5x+18$
 $9-2x=-5x+18$
 $-2x+5x=9$
 $-2x+5x=9$
 $3x=9$
 $3x=9$
 $3x=9$
 $3x=9$

6.
$$-5-2(y-5)=4y-2(y+4)-3$$

$$-5-2y+0=4y-2y-8-3$$

$$-2y+5=2y-11$$

$$5=4y-11$$

$$6=4y-11$$

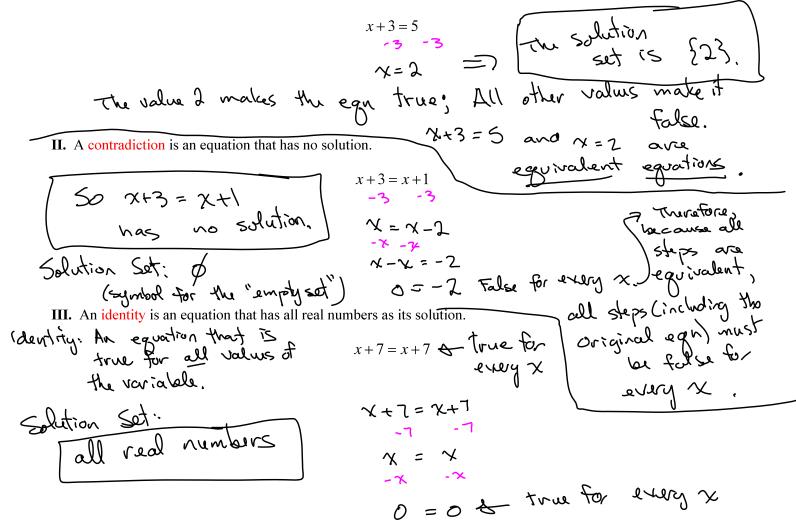
$$6=4y-11$$

$$16=4y-11$$

$$16=4y-$$

Conditional Equations, Identities, and Contradictions

I. A conditional equation is an equation that is true for some values of the variable but false for other values.



Identify the equation as a conditional equation, a contradiction, or an identity. Then describe the solution.

sol's set:
$$\{2-27\}$$
This is a conditional equation.

(3) - g = -9(3)

Note: Two numbers are reciprocals

$$\times$$
: $-\frac{4}{5}$ and $-\frac{3}{4}$ are reciprocals

11. If an equation has no solution, then is the equation a conditional equation, an identity, or a contradiction?

In equation with no solution.

8.
$$-2.3p+6=6-2.3p$$

$$-2.3p=-2.3p$$

$$-2.3p=-2.3p$$

$$-2.3p=-2.3p$$
true for every
always true
$$P = P$$
All real
numbers
$$This is a identity$$

10.
$$2x - (5x + 6) = 3(x - 5) + 9$$

 $2x - 5x - 6 = 3x - 15 + 9$
 $-3x - 6 = 3x - 6$
 $-3x$
 $-6x - 6 = -6$
 $+6$
 $-6x = 0$
 $-6x = 0$

tx: - = and - = are reciprocals: Ex: + and + are reciprocals

Check of 10.

$$2x - (5x+6) = 3(x-5) + 9$$
 $x = 6 = 2(0) - (5(0)+6) = 3(0-5) + 9$
 $x = 6 = 2(0) - (5(0)+6) = 3(-5) + 9$
 $x = 6 = -(5) + 9$
 $x = 6 = -(6) + 6$