

## DAY 3: SOLVING MULTI STEP EQUATIONS

OBJECTIVE: To solve multi step equations in one variable.

- Combine like terms to solve equations.
- Describe properties used to solve equations.
- Model a real life situation using linear equations.

ESSENTIAL UNDERSTANDING: To solve multi step equations, you form a series of simpler equivalent equations. To do this, use the properties of equality, inverse operations and properties of real numbers. You use the properties until you can isolate the variable.

LESSON:

COMBINING LIKE TERMS:

What is the solution to each equation? Check your answer

- 1)  $5 = 5m - 23 + 2m$
- 2)  $11m - 8 - 6m = 22$
- 3)  $-2y + 5 + 5y = 14$

SOLVING MULTI-STEP EQUATION:

- 1) Martha takes her niece and nephew to a concert. She buys T-shirts and bumper stickers for them. The bumper stickers cost \$1 each. Martha's niece wants 1 shirt and 4 bumper stickers, and her nephew wants 2 shirts but no bumper stickers. If Martha's total is \$67, what is the cost of one shirt?

KNOW

NEED

PLAN

- 2) Noah and Kate are shopping for new guitar strings in a music store. Noah buys 2 packs of strings. Kate buys 2 packs of strings and a music book. The book costs \$16. Their total cost is \$72. How much is one pack of strings?

KNOW

NEED

PLAN

SOLVING EQUATIONS THAT USE THE DISTRIBUTIVE PROPERTY:

What is the solution of:

1)  $-8(2x - 1) = 36$

2)  $18 = 3(2x - 6)$

SOLVING AN EQUATION THAT CONTAINS FRACTIONS OR DECIMALS:

What is the solution of:

1)  $\frac{3x}{4} - \frac{x}{3} = 10$

2)  $\frac{2b}{5} + \frac{3b}{4} = 3$

3)  $\frac{1}{9} = \frac{5}{6} - \frac{m}{3}$

What is the solution of:

1)  $3.5 - 0.02x = 1.24$

2)  $0.5x - 2.325 = 3.95$

SUGGESTED LESSON:

CLASSWORK: Lesson Check

HOMEWORK: Worksheet evens

Lesson Quiz:

- 1) What is the solution of  $7x + 14 - 3x = 30$
- 2) Lisa buys a dozen apples and two oranges. Jeremy buys six apples. Oranges cost \$1 each and they spend \$9 total. How could you define variables to find the cost of the apples and oranges?
- 3) What is the solution of  $6(3 - 2x) = 54$
- 4) What is the solution of  $\frac{2x}{5} - \frac{x}{2} = 40$
- 5) What is the solution of  $1.4 - 0.04x = 5.20$

CLOSING QUESTION: There is often more than one method for solving multi-step equations. How can you decide which method to use?

These equations have an extra step. First simplify each side by combining like terms. Then use the Addition Principle.

example

$$2x + 5x + 11 = 53$$

$$7x + 11 = 53$$

$$7x = 42$$

$$x = 6$$

$$3 + 4x + 5x = 21$$

$$5x + 8 - 2x = 26$$

$$16x - 8 - 9x = 27$$

$$x - 3x + 9 = 27$$

$$2x + 7 + 2x = 23$$

$$4x + 9x + 8 = 47$$

$$55 - 3x - 2x = 10$$

$$8x + 7 + 2x = 7$$

$$61 = 6 - 8x - 3x$$

$$x + 6 + x = 28$$

$$4x - 3 + 2x = 15$$

$$6x + 14 + x = 56$$

$$0 = 3x - 20 + 2$$

$$2x + 5 - 10x + 11 = 0$$

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Algebra Practice Problems

Worksheet generated at [www.math.com](http://www.math.com)

1.)  $4(3x + 4) = 148$

2.)  $3(7x - 2) = 36$

3.)  $3(-5x + 1) = -177$

4.)  $-3(3 + x) = -45$

5.)  $3(1x + 4) = 15$

6.)  $-6(10 + 3x) = -258$

7.)  $5(6x + 7) = 155$

8.)  $6(3x + 2) = -42$

9.)  $4(-7 + 5x) = -28$

10.)  $-3(1x + 7) = -33$

DAY 2  
Solutions of Equations

Name \_\_\_\_\_

Date \_\_\_\_\_ Period \_\_\_\_\_

Solve.

1.  $4(2x + 7) = 108$

10

2.  $5(3x + 8) = 175$

\_\_\_\_\_

3.  $8(3x + 1) = 128$

\_\_\_\_\_

4.  $-4(2x + 11) = 92$

\_\_\_\_\_

5.  $-6(5x + 2) = 198$

\_\_\_\_\_

6.  $-7(3x - 1) = 91$

\_\_\_\_\_

7.  $8(3x - 1) = -80$

\_\_\_\_\_

8.  $5(9x - 4) = 25$

\_\_\_\_\_

9.  $-7(4x - 7) = 105$

\_\_\_\_\_

10.  $4(3x - 9) = 96$

\_\_\_\_\_

11.  $3(4x - 7) = 135$

\_\_\_\_\_

12.  $8(2x - 4) = 96$

\_\_\_\_\_

13.  $10(5x - 3) = 20$

\_\_\_\_\_

14.  $9(7x - 4) = 27$

\_\_\_\_\_

15.  $7(2x - 4) = 28$

\_\_\_\_\_

16.  $9(5x - 2) = 117$

\_\_\_\_\_

17.  $4(7x + 6) = 80$

\_\_\_\_\_

18.  $6(3x + 11) = 30$

\_\_\_\_\_

19.  $4x - 5(3x + 10) = 126$

\_\_\_\_\_

20.  $5x - 4(2x + 11) = 13$

\_\_\_\_\_

21.  $7x - 2(3 + 4x) = 19$

\_\_\_\_\_

22.  $17x - 3(4 + 5x) = 44$

\_\_\_\_\_

23.  $15 + 3(2x - 9) = 60$

\_\_\_\_\_

24.  $10x - 3(8 - 5x) = -74$

\_\_\_\_\_

25.  $28 - 6(2x + 4) = 124$

\_\_\_\_\_

26.  $35 - 5(2x + 3) = 20$

\_\_\_\_\_

27.  $3(2x - 1) + 5 = 14$

\_\_\_\_\_

28.  $8(3x - 5) + 20 = -68$

\_\_\_\_\_

29.  $3(7x + 9) = -15$

\_\_\_\_\_

30.  $4(3x + 2) - 18 = 14$

\_\_\_\_\_

31.  $15 - (2x + 7) = 14$

\_\_\_\_\_

32.  $17 - (6x + 3) = -16$

\_\_\_\_\_

Mrs. Galluzzo

Name: \_\_\_\_\_

Distribution Homework Problems

Date: \_\_\_\_\_

Homework 11/19/18

Worksheet generated at  
[www.math.com](http://www.math.com)

1.)  $3(1x + 10) = 18$

2.)  $4(1x + 4) = 44$

3.)  $-6(6 - 3x) = 36$

4.)  $-2(2x + 4) = 8$

5.)  $-3(3 + 6x) = 63$