

# Math Applications

## Unit 1b

### Basic Algebra Concepts

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

Period: \_\_\_\_\_

# 1-5 Solving Equations

**Goal:** \_\_\_\_\_

**How:** \_\_\_\_\_

To get rid of addition, use \_\_\_\_\_

To get rid of subtraction, use \_\_\_\_\_

To get rid of multiplication, use \_\_\_\_\_

To get rid of division, use \_\_\_\_\_

## Solving 2 Step Equations:

1.) Get rid of \_\_\_\_ and \_\_\_\_ first!

2.) Isolate the variable using \_\_\_\_ or \_\_\_\_

## 9/30 classwork

|                               |                              |
|-------------------------------|------------------------------|
| 1.) $x - 9 = -20$             | 2.) $-5 = 3 + x$             |
| 3.) $20 + x = 16$             | 4.) $-7 + x = -6$            |
| 5.) $-8x = 72$                | 6.) $\frac{x}{7} = -4$       |
| 7.) $5x + 6 = 41$             | 8.) $49 = -y - 11$           |
| 9.) $-7 = -3x + 14$           | 10.) $-9 = 15 + \frac{x}{3}$ |
| 11.) $\frac{x}{-7} - 14 = -2$ | 12.) $-20 = -4x - 12$        |

|                                |                                  |
|--------------------------------|----------------------------------|
| 13.) $\frac{2}{3}x = 18$       | 14.) $\frac{9}{2}x = -3$         |
| 15.) $14 = \frac{3}{4}y + 2$   | 16.) $\frac{4m}{5} = 7.2$        |
| 17.) $5x + 16 = 7x - 6$        | 18.) $6x = 3x - 27$              |
| 19.) $-2x - 6 = x + 8$         | 20.) $12x - 3 = 8x + 37$         |
| 21.) $5.4x + 8.2 = 9.8x - 2.8$ | 22.) $28 - 2.2x = 11.6x + 262.6$ |

## 5 Practice/HW

23.)  $4x + 5 = -7 + 8x$

24.)  $\frac{1}{8}x = 4$

25.)  $-8 = \frac{x}{2} - 3$

26.)  $10x - 7 = 7x + 5$

27.)  $48 = 5.7b - 3.3$

28.)  $6 - 9x = 24$

29.)  $-62 = 6x - 20$

30.)  $\frac{s}{4} + 15 = 7$

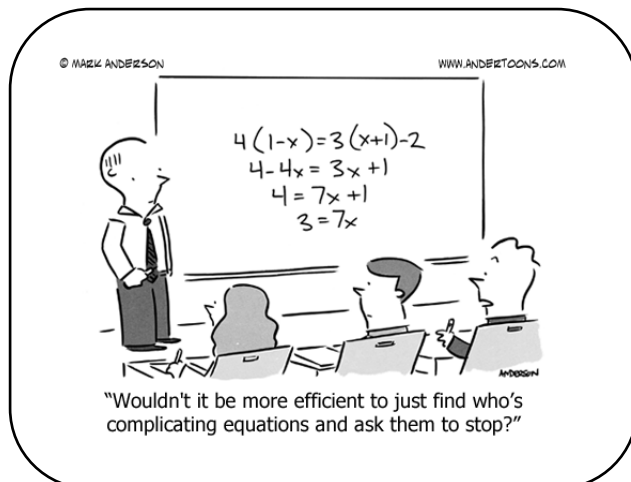
# 1-6 Multi Step Equations

1.) \_\_\_\_\_

2.) \_\_\_\_\_

3.) \_\_\_\_\_

4.) \_\_\_\_\_



|                               |                                   |
|-------------------------------|-----------------------------------|
| 1.) $6(3x + 4) = 24$          | 2.) $7w - 3(4w + 8) = 11$         |
| 3.) $45 = 3(4y - 5) - 6y$     | 4.) $-8(p - 8) + 60 - 6p = -254$  |
| 5.) $2x + 3(x - 1) - 7x = 11$ | 6.) $14x - 2(2x + 5) = 2(x + 7)$  |
| 7.) $6(a - 7) = 2a + 14$      | 8.) $-3(3x + 15) - (10 + x) = 35$ |

9.)  $2(x - 1) = 3(x + 1)$

10.)  $12x - 5 = 8x - x + 50$

11.)  $\frac{3}{8}(16x - 8) = 9 - 5(x - 2)$

12.)  $-4(m + 6) + 2m = 3(m + 2)$

13.)  $3n + 9 = 3 + 2(n + 4)$

14.)  $5 - \frac{1}{2}(x - 6) = 4$

15.)  $\frac{1}{4}(5 - 2x) = \frac{x}{2}$

16.)  $18 - 3.8x = 7.36 - 1.9x$

17.)  $1.03x - 4 = -2.15x + 8.72$

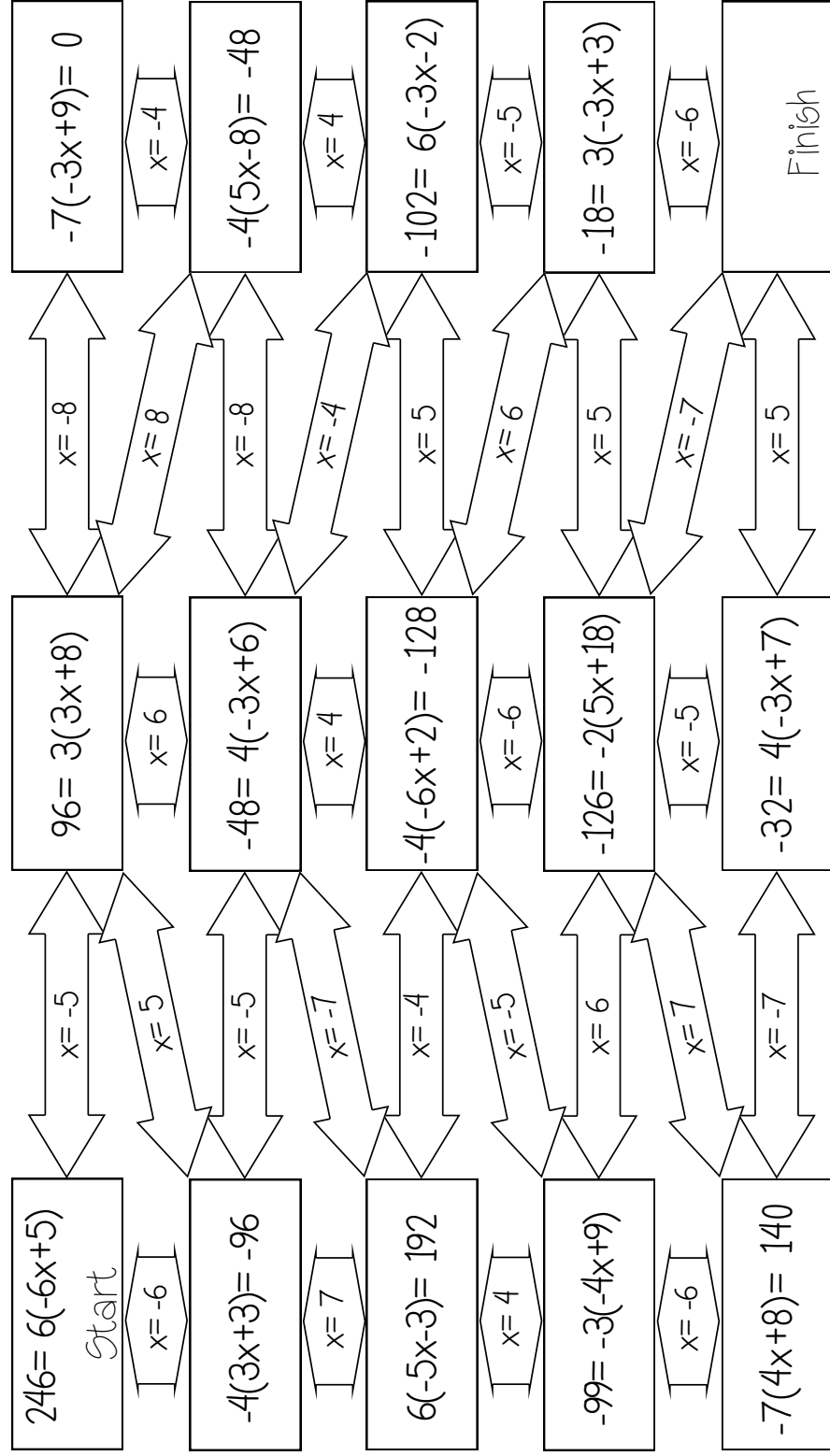
18.)  $2(6x + 20) - (-4 + x) =$

# Two Step Equations with Distribution

Name -----

Some boxes might  
not be used

Work your way through the maze by solving the equations. Begin at the "Start" box and work your way through the maze until you reach the "Finish" box.



## 1-7 Solve for the Indicated Variable

### **Solve for the Indicated Variable**

**\*\*ULTIMATE GOAL** - get the variable alone on one side of the = sign

Use the same method that you use when you solve any kind of equation (the only difference is there are multiple variables – they are indicating which one they want you to solve for)

*Solve each equation for the indicated variable.*

1.  $x - y = p$  ;  $x$

2.  $4x = y$  ;  $x$

3.  $y = \frac{1}{2}(m + 4)$  ;  $m$

4.  $10x + 5y = 150$  ;  $x$

5.  $3x - 4y + 5 = x - 2y + 3$  ;  $x$

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

7.  $4(x + 3y) - 2 = 6 - 12y$  ;  $x$



Practice

1).

2).

3).

4).

5).

1-7 HW

1.  $my + c = z; c$

2.  $3ax + b = c ; x$

3.  $10x + 5y = 150 ; y$

4.  $3x - 4y + 5 = x - 2y + 3 ; y$

5.  $3(x + y) - 1 = 17 - 3y ; x$

## 1-8 Writing and Solving Word Problems

### Writing and Solving Equations When Given a Word Problem

**When given a word problem that requires you to write an equation:**

**Step 1:** Read the word problem underline what you are solving for.

**Step 2:** Choose a variable to represent what you are trying to find the number of. Write a Let statement.

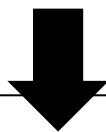
**Step 3:** Write an equation

**Step 4:** Solve the equation

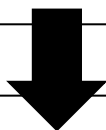
**Step 5:** Plug into the Let statements

**Define a Variable**

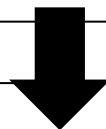
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**Write an Equation**



**Solve the Equation**



**Plug in Your Answer and**



**FIND THE NUMBER** Word Problems: IS means \_\_\_\_\_

1. The sum of twice a number and 7 is 23. Find the number.
  
  
  
  
  
  
  
  
  
  
2. If 6 times a number is decreased by 4, the result is 62. Find the number.
  
  
  
  
  
  
  
  
  
  
3. Ten times a number increased by 8 is 58. Find the number.

**RATIO** Word Problems:

The trick is: \_\_\_\_\_

4. Two numbers are in the ratio 4:3. Their sum is 70. Find the numbers.
  
  
  
  
  
  
  
  
  
  
5. Find two numbers in the ratio 5:3 whose sum is 160.

6. The ratio of the number of boys in a school to the number of girls is 11:10. If there are 525 students in the school, how many of them are boys?

## **COMPARISON** Word Problems:

ALWAYS Let  $x$  be \_\_\_\_\_

7. Cassidy has a bag of candy containing chocolate bars and gum. The number of pieces of gum is three times the number of chocolate bars. She has 52 pieces of candy in all. How many pieces of gum and how many chocolate bars does Cassidy have?
8. At the last school dance, 150 students attended. There were 30 more girls than boys at the dance. How many were boys and how many were girls?
9. Torgi has a collection of grasshoppers and crickets. He has 561 insects in all. The number of grasshoppers is twice the number of crickets. Find the number of each type of insect that he has.

10. Three times as many Bills fans as Patriots fans went to a preseason tailgate. If a total of 20 Bills and Patriots fans went to the tailgate, how many were Bills fans?
11. Peter and Stephanie went to the store to buy snacks for their Math Apps party. They bought bags of chips, pretzels, and nachos. They bought three times as many bags of pretzels as bags of chips, and two fewer bags of nachos than bags of pretzels. If  $x$  represents the number of bags of chips they bought, express, in terms of  $x$ , how many bags of snacks they bought in all.

### 1-8 Prac/HW

1. Three more than 4 times a number is 19. What is the number? (FIND THE NUMBER)
2. Two numbers are in the ratio of 2:5. If 6 is subtracted from their sum, the result is 50. What is the larger number? (RATIO)
3. Garrett and Loren had a total of 20 yards of material from which to make their togas. Garrett used three times more material to make her costume than Loren used, and 2 yards of material was **not** used. How many yards of material did Loren use for her toga? (COMPARISON)