

**Objective:** Applying Systems to Real Problems**Homework SY5 – The Doctor’s Guide to the Real World****Do Now:** Use substitution or elimination to solve the system.

$$\begin{aligned} 1. \quad y &= -20x \\ y &= -15x + 90 \end{aligned}$$

$$\begin{aligned} 2. \quad x + y &= 10 \\ 2x + 5y &= 32 \end{aligned}$$

**State Test Prep:** What is the sum of  $3x$ ,  $-5x$ ,  $10x$ ,  $-6y$ , and  $-8y$ ?

A)  $12x - 14y$

B)  $18x + 14y$

C)  $8x - 14y$

D)  $6xy$

***A very special message from The Doctor...*****Nothing new in this lesson! Use what you know about all three methods to solve these real-world problems.****Prepare yourself to become a better person...**

The cost of 8 muffins and 2 quarts of milk is \$18. The cost of 3 muffins and 1 quart of milk is \$7.50. How much does 1 muffin and 1 quart of milk cost?

Timmy has just enough money, in coins, to pay for a \$2.85 loaf of bread. He has 15 coins consisting of only quarters and dimes. Find the number of dimes and quarters that Timmy is carrying.

**A pet store currently has a total of 45 cats and dogs. There are 7 more cats than dogs. Find the number of cats and dogs in the store. Write and solve a system of equations that represents the situation.**

**The sum of Sally's age plus twice Tomas' age is 12. The difference of Sally's age and Tomas' age is 3. Write and solve a system of equations to find their ages.**

**Elena baked 36 cookies. There are 8 more chocolate chip cookies than peanut butter. Write and solve a system of equations that represent the situation.**

**Mary sold 20 necklaces and bracelets at the craft fair. She sold 3 times as many necklaces as bracelets. Solve a system of equations for the situation.**

A total of 75 cookies and cakes were donated for a bake sale to raise money for the football team. There were four times as many cookies donated as cakes. Write and solve a system of equations for the situation.

Mr. Thomas cooked 45 hamburgers and hot dogs at a cookout. He cooked twice as many hot dogs as hamburgers. Write and solve a system of equations for the situation.

Seven people went to the movies. The number of adults was one more than the number of children. Write a system of equations that represents the number of adults and children. Solve the system algebraically.

The length of a rectangle is three more than the width. The perimeter is 26 meters. Write and solve a system of equations that represents this situation. What are the dimensions of the rectangle?

**Find the Break-Even Point: This is the point where income equals expenses.**

**A model airplane club publishes a newsletter. Expenses are \$0.90 for printing and mailing each copy, plus \$600 for research/writing. The price of the newsletter is \$1.50. How many copies must the club sell to break even?**

**A metalworker has some ingots of an alloy that are 20% copper and others that are 60% copper. How many kilograms of each should the worker combine to create 80 kg of a 52% copper alloy?**