

# Lesson #11: Solving Systems of Equations Story Problems

By the end of this lesson, you will be able to:

- ~ Solve story problems by elimination
- ~ Solve story problems by substitution

## Lesson #11: Systems Story Problems

### Steps for Solving Problems with Mathematical Models

**Step 1: Identify what you are looking for.**

**Step 2: Give Names to the Unknowns.**

**Step 3: Translate the Problem into the Language of Mathematics.**

**Step 4: Solve the Equation(s) Found in Step 3.**

**Step 5: Check the Reasonableness of your Answer.**

**Step 6: Answer the Question (in a complete sentence).**

## Lesson #11: Systems Story Problems

**Ex 7:** The school that Lisa goes to is selling tickets to the annual talent show. On the first day of ticket sales the school sold 4 senior citizen tickets and 5 student tickets for a total of \$102. The school took in \$126 on the second day by selling 7 senior citizen tickets and 5 student tickets. What is the price each of one senior citizen ticket and one student ticket?

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## Lesson #11: Systems Story Problems

**We need to know a formula when dealing with interest rates and money:**

$$I = Prt$$

I = Interest

P = Principal (What we start with \$\$\$)

r = rate (yearly)

t = time (years)

You will normally find an equation for each: **total principal** and **total interest**.

## Lesson #11: Systems Story Problems

**Ex 8:** Paul wants to invest his \$25,000 bonus check. His investment advisor has recommended that he put some of the money in Bonds that yeild 5% per annum and the rest in Stocks that yields 9% per annum. If Paul wants to earn \$1875 each year from his investments, how much should be placed in each?

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### Step 3: Translate the Problem into the Language of Mathematics.

|       | Principal | Rate | Time | Interest |
|-------|-----------|------|------|----------|
| X     |           |      |      |          |
| y     |           |      |      |          |
| Total | 25000     |      |      | 1875     |

total principal equation:

total interest equation:

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**Step 5: Check the Reasonableness of your Answer.**

**Step 6: Answer the Question (in a complete sentence).**

# **Rest of Journal #11**

Due at the end of Math Lab

# **Assignment #11**

Due at the Beginning of B1