AFM **3.7 Systems of Equations** Chapter 3

*SWBAT solve a system of equations using matrices.*

**Writing Matrix Equations:** You can write this system with matrices by writing a matrix equation:



In the matrix equation: the A matrix holds the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The X matrix holds the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The B matrix holds the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Example 1:** Write the system using a matrix equation:

1. 
2. 

*Remember, your terms must be lined up!*

1. 
2. 
3. 

**You can SOLVE this system with matrices:**

Step 1: \_\_\_\_\_\_\_\_\_\_\_ the terms of your system

Step 2: Write a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (**Remember:** if you are missing a value, put zero in its place)

Step 3: Multiply (using your calculator) \_\_\_\_\_\_\_ x \_\_\_\_\_\_\_\_

Ex1.  Ex2. 

Ex3.  Ex4. 

AFM **3.7 Systems of Equations** Chapter 3

*SWBAT solve real-life equations using systems of equations.*

**Example 1:** If 8 pens and 7 pencils cost $3.37 while 5 pens and 11 pencils cost $3.10, how much does each pen and each pencil cost?

**Example 2:** You have 17 coins in pennies, nickels, and dimes in your pocket. The value of the coins is $0.47. There are four times the number of pennies as nickels. How many of each type of coin do you have?

**Example 3:** Last Monday, an airline flew 89 passengers on a commuter flight from Boston to New York. Some of the passengers paid $120 for their tickets and the rest paid $230 for their tickets. The total cost of all of the tickets was $14,200. How many passengers bought $120 tickets? How many bought $230 tickets?

**Example 4:** For a party, you are cooking a large amount of stew that has meat, potatoes, and carrots. The meat costs $6 per pound, the potatoes cost $3 per pound, and the carrots cost $1 per pound. You spend $48.50 on 13.5 pounds of food. You buy twice as many carrots as potatoes. How much of each ingredient did you buy?

**Example 5:** You work at a fruit stand that sells apples for $2 per pound, oranges for $5 per pound, and bananas for $3 per pound. Yesterday you sold 60 pounds of fruit and made $180. You sold 10 more pounds of apples than bananas. How many pounds of each kind of fruit did you sell yesterday?