Systems of Equations Word Problems

Directions:
- Read each paragraph. Identify and name the variables that create equations.
- Write two separate equations that represent the system of equations.
- Solve the system of equations.

EXAMPLE PROBLEM:

The annual talent show is happening at SPHS. On the first day of ticket sales, the school sold 6 adult tickets and seven student tickets for $116. The school sold $26 worth of tickets on the second day by selling 4 adult tickets and 1 student ticket. What is the price for per ticket for students and for adults?

  Variables: Let a represent adult tickets and s represent student tickets.

  Day 1 Equation: $6a + 7s = 116$

  Day 2 Equation: $4a + 1s = 26$

  →Solution: $3 per adult ticket, $14 per student ticket.

1) 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?

2) Flying with the wind a plane went 183 km/h. Flying into the same wind the plane only went 141 km/h. Find the speed of the plane in still air and the speed of the wind.

3) Castel and Gabriella are selling pies for a school fundraiser. Customers can buy apple pies and lemon meringue pies. Castel sold 6 apple pies and 4 lemon meringue pies for a total of $80. Gabriella sold 6 apple pies and 5 lemon meringue pies for a total of $94. What is the cost each of one apple pie and one lemon meringue pie?

4) The school that Imani goes to is selling tickets to the annual dance competition. On the first day of ticket sales the school sold 3 senior citizen tickets and 3 child tickets for a total of $69. The school took in $91 on the second day by selling 5 senior citizen tickets and 3 child tickets. What is the price each of one senior citizen ticket and one child ticket?

5) Ming and Carlos are selling cookie dough for a school fundraiser. Customers can buy packages of chocolate chip cookie dough and packages of gingerbread cookie dough. Ming sold 8 packages of chocolate chip cookie dough and 12 packages of gingerbread cookie dough for a total of $364. Carlos sold 1 package of chocolate chip cookie dough and 4 packages of gingerbread cookie dough for a total of $93. Find the cost each of one package of chocolate chip cookie dough and one package of gingerbread cookie dough.

6) Kayla's school is selling tickets to the annual dance competition. On the first day of ticket sales the school sold 3 senior citizen tickets and 5 child tickets for a total of $70. The school took in $216 on the second day by selling 12 senior citizen tickets and 12 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

7) A plane traveled 580 miles to Ankara and back. The trip there was with the wind. It took 5 hours. The trip back was into the wind. The trip back took 10 hours. Find the speed of the plane in still air and the speed of the wind.

8) The local amusement park is a popular field trip destination. This year the senior class at Carlsbad High School and the senior class at Encinitas High School both planned trips there. The senior class at Carlsbad High School rented and filled 16 vans and 8 buses with 752 students. Encinitas High School rented and filled 5 vans and 5 buses with 380 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?

9) Find the value of two numbers if their sum is 12 and their difference is 4.

10) The difference of two numbers is 3. Their sum is 13. Find the numbers.

11) Flying to Calexico with a tailwind a plane averaged 158 km/h. On the return trip, the plane only averaged 112 km/h while flying back into the same wind. Find the speed of the wind and the speed of the plane in still air (no wind).

12) The school that Stefan goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 3 senior citizen tickets and 1 child ticket for a total of $38. The school took in $52 on the second day by selling 3 senior citizen tickets and 2 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

13) The sum of the digits of a certain two-digit number is 7. Reversing its digits increases the number by 9. What is the number?

14) Brenda's school is selling tickets to a spring musical. On the first day of ticket sales the school sold 3 senior citizen tickets and 9 child tickets for a total of $75. The school took in $67 on the second day by selling 8 senior citizen tickets and 5 child tickets. What is the price each of one senior citizen ticket and one child ticket?

15) Matt and Ming are selling fruit for a school fundraiser. Customers can buy small boxes of oranges and large boxes of oranges. Matt sold 3 small boxes of oranges and 14 large boxes of oranges for a total of $203. Ming sold 11 small boxes of oranges and 11 large boxes of oranges for a total of $220. Find the cost each of one small box of oranges and one large box of oranges.