Applications of Linear Systems - Day 1

Linear systems can be useful for modeling and solving problems involving amounts and prices of items.

To solve linear system applications involving amounts and costs and/or revenue:

a. Write a let statement to describe the meaning of each variable.
b. Create two linear equations based on the given information.
    Case #1
        i. The first equation should describe the total number of items.
        ii. The second equation should describe the revenue of the items.
    Case #2
        iii. The first equation will represent the costs for scenario A.
        iv. The second equation will represent the costs for scenario B.
c. Solve the linear system by substitution or comparison or elimination.
d. Write a concluding statement to answer the question.

1. A small concert venue sold a total of 227 tickets for a concert. The two ticket prices were $16 and $30 and the total revenue from ticket sales was $4444. Determine the number of tickets sold at each price.

2. The Frosty Ice-Cream Shop sells sundaes for $2 and banana splits for $3. On a hot summer day, the shop sold 8 more sundaes than banana splits and made $156. Determine the number of each item sold.

3. At a restaurant the cost for a breakfast taco and a small glass of milk is $2.10. The cost for 2 tacos and 3 small glasses of milk is $5.15. Determine the cost of each item.

Homework – Complete questions #1, 3, 12, and 15 on pages 46-47.
Complete questions #1-4 below.

1. A small concert venue sold a total of 236 tickets for a concert. Tickets cost either $30 or $19. If the total revenue from ticket sales was $5188, how many tickets at each price were sold?

2. Brodie's Gourmet Pretzel Shop specializes in selling the very finest chocolate covered pretzels. Pierce bought 4 white chocolate pretzels and 6 dark chocolate pretzels for $10.50. Holden bought 8 white chocolate and 3 dark chocolate pretzels for $9.75. Determine the price of each type of pretzel.

3. The local preschool ordered all new bicycles and tricycles for the new school year. Each bicycle and tricycle is shipped in its own box. Oddly, the manufacturer shipped all the wheels in a separate box. If there are 16 boxes of bicycles and tricycles in total and 45 wheels total, how many tricycles were ordered?

Answers

1. 172 tickets at $19 and 64 tickets at $30
2. White chocolate pretzels cost $0.75 each and dark chocolate pretzels cost $1.25 each.
3. 13 tricycles were ordered (and 3 bicycles).