

Name_____

Situation Problems Involving Systems

1. The parents of the Little League players are working in the concession stand selling soft drinks and popcorn. The soft drinks and popcorn are both being sold in the same size paper cup. They sold \$272.25 worth of soft drinks and popcorn, and they used a total of 275 cups at the last game night. If the soft drinks sell for \$1.25 per drink and popcorn sells for \$.75 per cup, how many of each did they sell?
2. Amallia is purchasing a new stove for her apartment. One brand costs \$1800 and estimates \$60 per month to operate. A more expensive brand costs \$2600, but only costs \$40 per month to operate.
 - a. Write an equation representing the cost of each stove in terms of months owned.
 - b. Find the total cost of each after 1 year, 2 years, and 3 years.
 - c. Plot the graph of each on the same axes.
 - d. Find the break-even point for the two stoves. When does this occur? What is this cost?
 - e. If Amallia plans on keeping this stove for five years, which stove would be the most economical? Explain.

3. At the end of the school year, the New Bryant High School mathematics department was required to run an inventory of the graphing calculators. They have two types, TI-84 and TI-Nspire. The math department had purchased 350 calculators for a total of \$37,750. If TI-84 calculators cost \$95 each and TI-Nspire calculators cost \$125 each, how many of each type of calculator should the school have in inventory?

4. Jamar is planning on purchasing a new truck and is comparing the benefits of his two favorite trucks. The first truck has a regular engine and costs \$21,500 to purchase and 32 cents per mile to operate. The second truck has a fuel-injection engine and costs \$22,500 to purchase and only 29 cents per mile to operate.
 - a. Write an equation for each truck comparing total cost in terms of miles operated.

 - b. Calculate the cost of operating each vehicle for 1,000, 10,000, and 50,000 miles.

 - c. Plot the graph of each on the same axes.

 - d. Find the break-even point for the two vehicles. At what mileage does this occur? What is this cost?

 - e. If Jamar plans to drive his new truck for at least 40,000 miles, which truck would be the most economical purchase? Explain.