

3.3 Matrix Applications Worksheet
PAP Algebra 2

Name _____
Date _____ Per _____

Write a linear system with the information given in each problem, set up a matrix, then solve. Show all work (variables defined, linear system, matrix) and write your answer in a sentence.

1. Admission for a talent show was \$1.25 for adults and \$.50 for children, and the receipts totaled \$406.75. If 512 people attended, how many adults and how many children were there?

2. A collection of dimes and quarters is worth \$19. There are 91 coins in all. How many of each are there?

3. Dillon bought 3 hot dogs and 2 candy bars for \$4.50, and Andy bought 1 hot dog and 4 candy bars for \$4.00. How much did each item cost?

4. At a furniture store, one sofa and one love seat cost \$1100; one sofa and three chairs cost \$1600; and one sofa, one love seat, and one chair cost \$1400. What is the price of one sofa?

5. The feed mill pays a farmer \$6930 for the 1st delivery, \$5475 for the 2nd delivery, and \$8879.50 for the 3rd delivery. The table shows the number of bushels included in each delivery. Find the price per bushel that the farmer received for each crop.

Delivery	Corn	Wheat	Soybeans
1 st	900	540	360
2 nd	1125	150	225
3 rd	860	645	645

6. The movie theater charges \$4 for children, \$6 for adults, and \$5 for senior citizens. A group of 14 people from a family went to see a movie. There were an equal number of children and senior citizens. The total cost was \$66. Let x represent children, y represent adults, and z represent senior citizens. How many people in the group were in each age category?

7. The Nut Company sells made to order trail mixes. Zack's favorite nut mix contains peanuts, raisins, and carob-coated pretzels. Peanuts sell for \$3.20 per pound, raisins sell for \$2.40 a pound, and carob-coated pretzels are \$4.00 a pound. Sam bought a 5 pound mixture for \$16.80 that contained twice as many pounds of carob coated pretzels as raisins. How many pounds of peanuts, raisins, and carob-coated pretzels did Sam buy?

8. During the 2004-2005 NBA season, Shaquille O'Neal scored 1669 points while making 1011 shots. Shaq's points were a combination of 3-point field goals, 2-point field goals, and 1-point free throws. He made 305 more 2-point field goals than free throws. How many of each type of shot did Shaq make during the season?

9. **ACT/SAT.** Each year at Lake High School the students vote to choose that year's prom theme. The theme "A Night Under the Stars" received 225 votes, and the theme "The Time of My Life" received 480 votes. If 40% of girls voted for "A Night Under the Stars", and 75% of boys voted for "The Time of My Life", and all of the students voted, how many girls and boys are there at Lake High School?