

!! YOU MUST WRITE THE EQUATIONS AND THEN USE MATRICES TO SOLVE !!
(EXCEPT FOR #7)

1. **Sea World** In 1990, the aquariums with the greatest attendance were the Sea Worlds in Florida, California, and Texas. The total attendance at these three was 10,200,000. Sea World of Florida had 300,000 more than Sea World of California. Sea World of California has 1,200,000 more than Sea World of Texas. What was the 1990 attendance of each?
2. **Breakfast Calories** For breakfast, you had 1 cup of oatmeal, 1 cup of low fat milk, and 1 cup of orange juice, for a total of 375 calories. Your brother had 2 cups of oatmeal, 2 cups of low fat milk, and 1 cup of orange juice, for a total of 640 calories. Your sister had 1 cup of oatmeal, $\frac{3}{4}$ cup of low fat milk, and $\frac{1}{2}$ cup of orange juice, for a total of 290 calories. How many calories are in 1 cup of oatmeal, 1 cup of low fat milk, and 1 cup of orange juice?
3. **Inventory Control** An interior decorator has ordered 12 cans of sunset paint, 35 cans of brown paint, and 18 cans of fuchsia paint. The paint store has *special pair* packs, containing 1 can each of sunset and fuchsia; *darkening* packs, containing 2 cans of sunset, 5 cans of brown, and 2 cans of fuchsia, and *economy* packs, containing 3 cans of sunset, 15 cans of brown, and 6 cans of fuchsia. How many of each type of pack should the paint store send to the interior decorator?

4. **Investment** An amount of \$5000 is put into three investments at rates of 6%, 7%, and 8% per annum, respectively. The total income is \$358. The income from the first two investments is \$70 more than the income from the third investment. Find the amount of each investment.
5. **Food Order** One group of customers bought 6 burritos, 8 tacos, and 5 big orange drinks for \$21.17. A second group ordered 10 burritos, 7 tacos, and 7 big orange drinks and paid \$28.38. A third group ordered 5 burritos, 11 tacos, and 8 big orange drinks for \$25.14. Is there enough information to determine the price of each food item? If so, find them. If not, construct a table with 3 possibilities.
6. **Transportation** A manufacturer purchases a part for use at both of its plants—one at Roseville, CA, the other at Akron, OH. The part is available in limited quantities from two suppliers. Each supplier has 75 units available. The Roseville plant needs 35 units, and the Akron plant requires 75 units. The first supplier charges \$70 per unit delivered to Roseville and \$90 per unit delivered to Akron. Corresponding costs from the second supplier are \$80 and \$120. The manufacturer wants to order a total of 75 units from the first, less expensive, supplier, with the remaining 35 units to come from the second supplier. If the company spends \$9,750 to purchase the required number of units for the two plants, find the number of units that should be purchased from each supplier for each plant.
7. **Supply and Demand** For a certain commodity the supply equation is given by $S = 6p + 4$. At a price of \$2, 31 units were demanded. If the demand equation is linear and the market price is \$3.50, find the demand equation.