

51. AIRSPEED It takes a private airplane 8.75 hours to make the 2,100-mile flight from Atlanta to Los Angeles and 5 hours to make the return trip. Assuming that the wind blows at a constant rate from Los Angeles to Atlanta, find the airspeed of the plane and the wind rate.

53. RATE-TIME A crew of eight can row 20 kilometers per hour in still water. The crew rows upstream and then returns to its starting point in 15 minutes. If the river is flowing at 2 km/h, how far upstream did the crew row?

55. BUSINESS A company that supplies bulk candy to bakeries has one batch of chocolate chips that are 50% dark chocolate and 50% milk chocolate. They have another batch that is 80% dark chocolate and 20% milk chocolate. One of their customers sends in a rush order for 100 lb of a mix that is 68% dark chocolate. How many pounds from each batch should be mixed to meet this order?

57. BREAK-EVEN ANALYSIS It costs a small recording company \$17,680 to prepare a compact disc. This is a one-time fixed cost that covers recording, package design, and so on. Variable costs, including such things as manufacturing, marketing, and royalties, are \$4.60 per CD. If the CD is sold to music shops for \$8 each, how many must be sold for the company to break even?

59. PRODUCTION A supplier for the electronics industry manufactures keyboards and screens for graphing calculators at plants in Mexico and Taiwan. The hourly production rates at each plant are given in the table. How many hours should each plant be operated to fill an order for exactly 4,000 keyboards and exactly 4,000 screens?

61. SUPPLY AND DEMAND Suppose the supply and demand equations for printed T-shirts in a resort town for a particular week are

$$p = 0.007q + 3 \quad \text{Supply equation}$$

$$p = -0.018q + 15 \quad \text{Demand equation}$$

where p is the price in dollars and q is the quantity.

(A) Find the supply and the demand (to the nearest unit) if T-shirts are priced at \$4 each. Discuss the stability of the T-shirt market at this price level.

(B) Find the supply and the demand (to the nearest unit) if T-shirts are priced at \$8 each. Discuss the stability of the T-shirt market at this price level.

(C) Find the equilibrium price and quantity.

(D) Graph the two equations in the same coordinate system and identify the equilibrium point, supply curve, and demand curve.

63. SUPPLY AND DEMAND At \$0.60 per bushel, the daily supply for wheat is 450 bushels and the daily demand is 645 bushels. When the price is raised to \$0.90 per bushel, the daily supply increases to 750 bushels and the daily demand decreases to 495 bushels. Assume that the supply and demand equations are linear.

(A) Find the supply equation.

(B) Find the demand equation.

(C) Find the equilibrium price and quantity.