Math 112   Chapter 7 Applications

Rate, Time and Distance

1. An airplane flying into a headwind travels the 1800 mile flying distance between Indianapolis, Indiana and Phoenix, Arizona, in 3 hours. On the return flight, the airplane travels this distance in 2 hours and 30 minutes. Find the airspeed of the plane and the speed of the wind, assuming that both remain constant.

2. Two planes start from Quad City International Airport and fly in opposite directions. The second plane starts $1/2$ hour after the first plane, but its speed is 80 kilometers per hour faster. Find the speed of each plane when 2 hours after the first plane departs the planes are 3200 kilometers apart.

3. An airplane flying with a wind at its back travels a distance of 2000 miles in four hours. On the return trip it is flying against the wind and the trip takes 4 hours and 24 minutes. Find the speed of the airplane and the wind, assuming both remain constant.

Financial Investments

4. A total of $24,000 is invested in two corporate bonds that pay 3.5% and 5% simple interest. The investor wants an annual interest income of $930 from the investments. What amount should be invested in the 3.5% bond?

5. A total of $32,000 is invested in two municipal bonds that pay 5.75% and 6.25% simple interest. The investor wants an annual income of $1900 from the investments. What amount should be invested in the 5.75% bond?

6. An inheritance of $40,000 is divided among three investments yielding $3500 in interest per year. The interest rates for the three investments ar 7%, 9%, and 11% simple interest. Find the amount placed in each investment when the second amount is $3000 less than the first, respectively.

Golf

7. The Old Course at St. Andrews Links in Saint Andrews, Scotland, is one of the oldest golf courses in the world. It is an 18-hole course that consists of par-3 holes, par-4 holes and par-5 holes. There are seven times as many par-4 holes as par-5 holes, and the sum of the numbers of par-3 and par-5 holes is four. Find the numbers of par-3 holes, par-4 holes and par-5 holes on the course.