1. A bus traveling at an average rate of 50 kilometers per hour made the trip to town in 6 hours. If it had traveled at 45 kilometers per hour, how many more minutes would it have taken to make the trip?
2. A bus and a car leave the same place and traveled in opposite directions. If the bus is traveling at 50 mph and the car is traveling at 55 mph, in how many hours will they be 210 miles apart?
3. John took a drive to town at an average rate of 40 mph. In the evening, he drove back at 30 mph. If he spent a total of 7 hours traveling, what is the distance traveled by John?
4. Into the head wind, the plane flew 200 miles in 5 hours. With a tailwind, the return trip took 4 hours. Find the speed of the plane in still air and the speed of the wind.
5. Two friends leave a hotel at the same time traveling in opposite directions. They travel for four hours and are then 480 miles apart. If Susan travels 10 miles per hour faster than Joan, find the average rate of speed for each person.
6. Alex is on the 55th floor of a building and rides the elevator down at 10 floors per minute. Lucy is on the first floor of the building and rides the elevator up at eight floors per minute. Alex and Lucy both got on the elevator at noon. At what time will they be on the same floor?
7. Two airplanes leave a starting point traveling in the same direction, one at 550 mph and the other at 180 mph. If the slower airplane has a one hour head start, at what distance from the starting point will the faster plane overtake the slower one?
8. Two students on bicycles leave their classroom building at exactly 10:00 AM and travel in opposite directions. If the average speed of one of the students is 12 kilometers per hour and the average speed of the other student is 14 kilometers per hour, at what time will they be 65 kilometers apart?
9. Jason and Leroy are entered in a 26 mile marathon race. Jason's average pace is 6 miles per hour and LeRoy's average pace is 8 miles per hour. Both runners start the race at the same time.

**How far** from the finish line will Jason be when LeRoy crosses the finish line?

1. Suppose two sisters live 240 miles apart. One sister has three young children who are planning to visit their aunt for a week. To prevent driving so far, the sisters agree to leave at the same time, drive toward each other, and meet somewhere along the route. The sister with the three children tends to drive carefully and obey the speed limit. Her average rate of speed is 70 mph. The other sister drives too fast, and her average rate of speed is 80 mph. How long will it take the two sisters to meet each other to transfer the children?

Reflection and Extension:

How do you feel about these types of problems? How does the strategy you use to solve these types of problems relate to chemical mixture or percent composition problems?

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Draw the diagrams for the following distance problems:

D1 = D2

D1 = D2 + k

Dt = D1 + D2