

Section 4.4 – Problems with Constant Motion

Problem Set 1

Answer the following questions.

1. Two trains leave a terminal at the same time. The first train passes a checkpoint 1.5 hours after leaving. The second train passes the same marker 2 hours after leaving. If one train was traveling 25 mph faster than the other, what were their average speeds?
2. To track a hurricane, an airplane flew due west from Tampa at an average speed of 275 mph. After reaching the eye of the hurricane, the plane turns around and flies back at an average speed of 250 mph. If the plane is in the air for 2.5 hours, how far did it travel?
3. An athlete ran the length of a track at 350 meters per minute and then walked back to the starting point at 75 meters per minute. How long is the course if she returned to the starting point 4 minutes after she left?
4. Two cars leave Tampa for Columbia at the same time. The difference between their speeds is 10 miles per hour. If the faster car reaches Columbia in six hours and the slower car arrives a half hour later, how fast were they going?
5. A man travels between two cities on business once a week, averaging 70 mph. If traffic is heavy and his speed is reduced by 15 mph then the trip takes an hour longer. What is his travel time at the higher speed?
6. An express train can make a round trip between two cities in three hours where it takes a freight train traveling at 20 mph less, 4.5 hours. What speeds are the trains traveling and what is the distance between the cities?
7. A ship must average 20 knots to make an 8 hour run on schedule. If bad weather forces the ship to slow to 18 knots for the first two hours, how fast does the ship have to go to arrive on time? (A knot is one nautical mile per hour.)