Motion
Prerequisite: System of Two Linear Equations
Dressler Fall 2016

Name_____

Solve the problem.

1) A cyclist bikes at a constant speed for 21 miles. He then returns home at the same speed but takes a different route. His return trip takes one hour longer and is 26 miles. Find his speed.

1) _____

2) A cyclist bikes at a constant speed for 23 miles. He then returns home at the same speed but takes a different route. His return trip takes one hour longer and is 28 miles. Find his speed.

2) _____

3) A car travels 400 miles on level terrain in the same amount of time it travels 160 miles on mountainous terrain. If the rate of the car is 30 miles per hour less in the mountains than on level ground, find its rate in the mountains.

3) _____

4) A car travels 400 miles on level terrain in the same amount of time it travels 160 miles on mountainous terrain. If the rate of the car is 30 miles per hour less in the mountains than on level ground, find its rate in the mountains.

4) _____

5) A boat moves 8 kilometers upstream in the same amount of time it moves 20 kilometers downstream. If the rate of the current is 9 kilometers per hour, find the rate of the boat in still water.

5) _____

6) A boat moves 9 kilometers upstream in the same amount of time it moves 17 kilometers downstream. If the rate of the current is 9 kilometers per hour, find the rate of the boat in still water.

6) _____

7) Jim can run 5 miles per hour on level ground on a still day. One windy day, he runs 13 miles with the wind, and in the same amount of time runs 4 miles against the wind. What is the rate of the wind?

7) _____

8) Jim can run 5 miles per hour on level ground on a still day. One windy day, he runs 15 miles with the wind, and in the same amount of time runs 7 miles against the wind. What is the rate of the wind?

8) _____

9) In a race, Car A starts 1 mile behind Car B. Car A is traveling at 50 miles per hour, while Car B is traveling at 40 miles per hour. How long will it take for Car A to overtake Car B?

9) _____

10) In a race, Car A starts 1 mile behind Car B. Car A is traveling at 55 miles per hour, while Car B is traveling at 45 miles per hour. How long will it take for Car A to overtake Car B?

10) _____

11) Julie and Eric row their boat (at a constant speed) 32 miles downstream for 4 hours, helped by the current. Rowing at the same rate, the trip back against the current takes 8 hours. Find the rate of the current.

11) _____

12) Julie and Eric row their boat (at a constant speed) 48 miles downstream for 6 hours, helped by the current. Rowing at the same rate, the trip back against the current takes 8 hours. Find the rate of the current.

12) _____

13) A barge takes 5 hours to move (at a constant rate) downstream for 45 miles, helped by a current of 2 miles per hour. If the barge's engines are set at the same pace, find the time of its return trip against the current.

13) _____

14) A barge takes 3 hours to move (at a constant rate) downstream for 27 miles, helped by a current of 3 miles per hour. If the barge's engines are set at the same pace, find the time of its return trip against the current.

14) _____

15) A twin-engined aircraft can fly 1216 miles from city A to city B in 4 hours with the wind and make the return trip in 8 hours against the wind. What is the speed of the wind?

15) _____

16) A twin-engined aircraft can fly 1520 miles from city A to city B in 5 hours with the wind and make the return trip in 8 hours against the wind. What is the speed of the wind?

16) _____

17) A cyclist bikes at a constant speed for 20 miles. He then returns home at the same speed but takes a different route. His return trip takes one hour longer and is 25 miles. Find his speed.

17) _____

18) A car travels 400 miles on level terrain in the same amount of time it travels 160 miles on mountainous terrain. If the rate of the car is 30 miles per hour less in the mountains than on level ground, find its rate in the mountains.

18) _____

19) A boat moves 8 kilometers upstream in the same amount of time it moves 15 kilometers downstream. If the rate of the current is 5 kilometers per hour, find the rate of the boat in still water.

19) _____

20) Jim can run 5 miles per hour on level ground on a still day. One windy day, he runs 14 miles with the wind, and in the same amount of time runs 7 miles against the wind. What is the rate of the wind?

20) _____

21) In a race, Car A starts 1 mile behind Car B. Car A is traveling at 45 miles per hour, while Car B is traveling at 40 miles per hour. How long will it take for Car A to overtake Car B?

21) _____

22) Julie and Eric row their boat (at a constant speed) 21 miles downstream for 3 hours, helped by the current. Rowing at the same rate, the trip back against the current takes 7 hours. Find the rate of the current.

22) _____

23) A barge takes 2 hours to move (at a constant rate) downstream for 16 miles, helped by a current of 3 miles per hour. If the barge's engines are set at the same pace, find the time of its return trip against the current.

23) _____

24) A twin–engined aircraft can fly 864 miles from city A to city B in 3 hours with the wind and make the return trip in 8 hours against the wind. What is the speed of the wind?

24) _____

1) 5 mph
2) 5 mph
3) 20 mph
4) 20 mph
5) 21 kilometers per hour
6) $29\frac{1}{4}$ kilometers per hour
7) $2\frac{11}{17}$ mph
8) $1\frac{9}{11}$ mph
9) 6 minutes
10) 6 minutes
11) 2 mph
12) 1 mph
13) 9 hours
14) 9 hours
15) 76 mph
16) 57 mph
17) 5 mph
18) 20 mph
19) $16\frac{3}{7}$ kilometers per hour
20) $1\frac{2}{3}$ mph
21) 12 minutes
22) 2 mph
23) 8 hours
24) 90 mph