

Name _____

Date _____

Additional Exercises 7.7

Form I

Applications Using Rational Equations and Proportions

1. 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. 1. _____

2. A boat travels 8 miles upstream and then back 8 miles in 3 hours. The current of the river is 2 mph. What is the speed of the boat in still water? 2. _____

3. Mark and Rachel both work for Smith Landscaping Company. Mark can finish a planting job in 3 hours, while it takes Rachel 5 hours to finish the same job. If Mark and Rachel will work together on the job, and the cost of labor is \$45 per hour, what should the labor estimate be? (Round to the nearest cent, if necessary.) 3. _____

4. One pump can drain a pool in 7 minutes. When a second pump is also used, the pool only takes 2 minutes to drain. How long would it take the second pump to drain the pool if it were the only pump in use? 4. _____

5. The tax on a property with an assessed value of \$70,000 is \$840. Find the tax on a property with an assessed value of \$162,500. 5. _____

6. To estimate the number of rainbow trout in a lake, wildlife biologists tagged 48 trout and released them in the lake. Later, they netted 120 and found 40 of them were tagged. Approximately how many trout are in the lake? 6. _____

7. A person's hair is proportional to the number of years it has been growing. After 2 years, a person's hair grows 8 inches. If Susie's hair has been growing for 7 years, how long is her hair? 7. _____

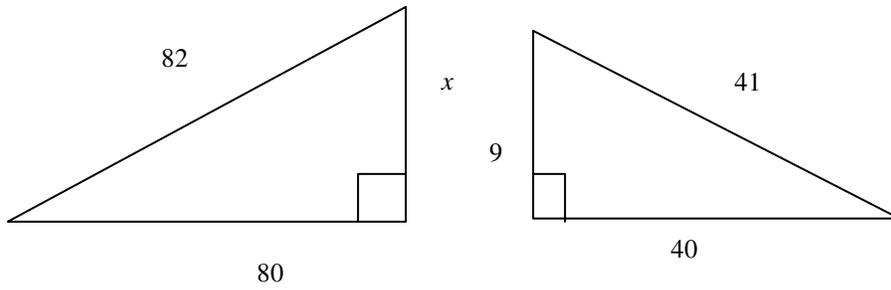
8. A tree casts a shadow 10 feet long. At the same time, a vertical rod 5 feet high casts a shadow 2 feet long. How tall is the tree? 8. _____

Name _____

Date _____

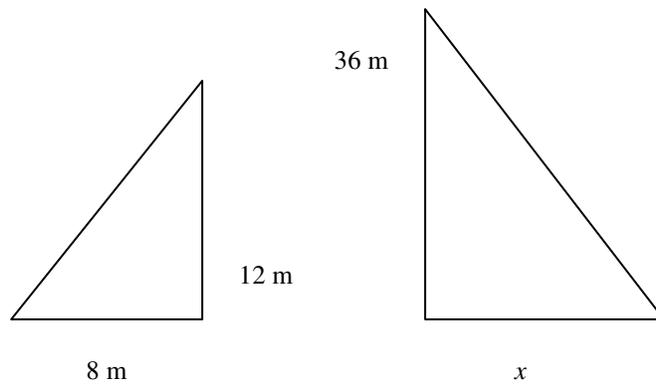
Use similar triangles and the fact that corresponding sides are proportional to find the length of the side marked with an x .

9.



9. _____

10.



10. _____

Name _____

Date _____

Additional Exercises 7.7

Form II

Applications Using Rational Equations and Proportions

1. 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. 1. _____

2. A boat travels 9 kilometers upstream in the same amount of time it moves 16 kilometers downstream. If the rate of the current is 6 kilometers per hour, find the rate of the boat in still water. 2. _____

3. In a race, Car A starts 1 mile behind Car B. Car A is traveling at 65 miles per hour, while Car B is traveling at 55 miles per hour. How long will it take for Car A to overtake Car B? 3. _____

4. One conveyor belt can move 1000 boxes in 11 minutes. Another can move 1000 boxes in 12 minutes. If another conveyor belt is added and all three are used, the boxes are moved in 3 minutes. How long would it take the third conveyor belt alone to do the same job? 4. _____

5. The tax on a property with an assessed value of \$125,000 is \$2500. Find the tax on a property with an assessed value of \$275,000. 5. _____

6. To estimate the number of rainbow trout in a lake, wildlife biologists tagged 80 trout and released them in the lake. Later, they netted 150 and found 32 of them were tagged. Approximately how many trout are in the lake? 6. _____

7. A person's hair is proportional to the number of years it has been growing. After 2 years, a person's hair grows 8 inches. If Susie's hair has been growing for 9 years, how long is her hair? 7. _____

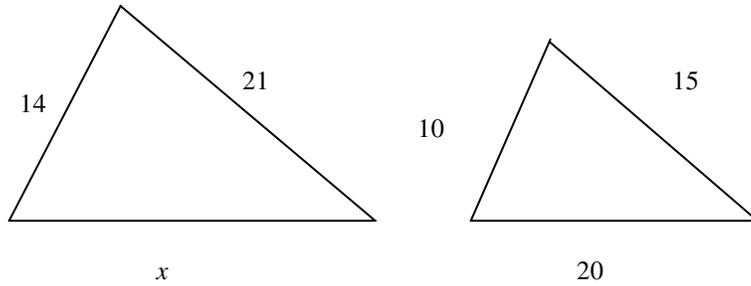
Name _____

Date _____

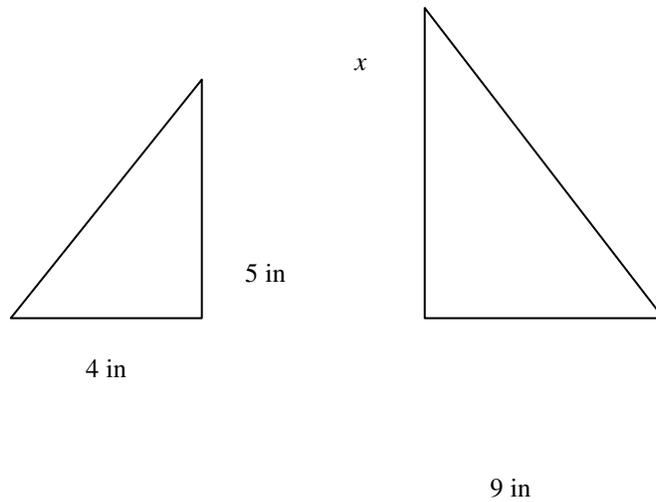
8. A tree casts a shadow 4 feet long. At the same time, a vertical rod 15 feet high casts a shadow 10 feet long. How tall is the tree? 8. _____

Use similar triangles and the fact that corresponding sides are proportional to find the length of the side marked with an x .

9. 9. _____



10. 10. _____



Name _____

Date _____

Additional Exercises 7.7

Form III

Applications Using Rational Equations and Proportions

1. The sports car travels 40 km/h faster than the loaded SUV and trailer. While the SUV travels 150 km, the sports car goes 350 km. Find their speeds. 1. _____

2. 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 4 miles against the wind. What is the rate of the wind? 2. _____

3. A painter can finish painting a house in 4 hours. Her assistant takes 6 hours to finish the same job. How long would it take for them to complete the job if they were working together? 3. _____

4. A baker can decorate the day's cookie supply four times as fast as his new assistant. If they decorate all the cookies working together in 12 minutes, how long would it take for each of them to decorate the cookies working individually? 4. _____

5. The tax on a property with an assessed value of \$315,000 is \$4725. Find the tax on a property with an assessed value of \$375,000. 5. _____

6. To estimate the number of rainbow trout in a lake, wildlife biologists tagged 21 trout and released them in the lake. Later, they netted 85 and found 15 of them were tagged. Approximately how many trout are in the lake? 6. _____

7. A person's hair is proportional to the number of years it has been growing. After 2 years, a person's hair grows 8 inches. If Susie's hair has been growing for 3 years, how long is her hair? 7. _____

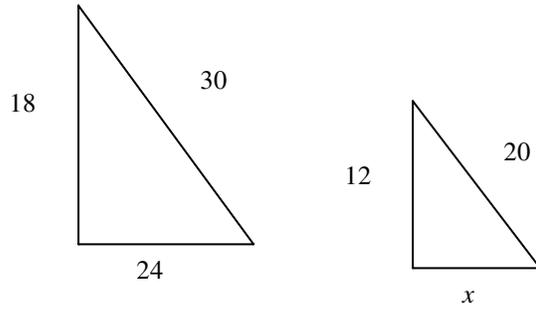
Name _____

Date _____

8. A tree casts a shadow 5 feet long. At the same time, a vertical rod 6 feet high casts a shadow 3 feet long. How tall is the tree? 8. _____

Use similar triangles and the fact that corresponding sides are proportional to find the length of the side marked with an x .

9. _____



10. _____

