

Check Your Understanding (p. 241):

6. Yes; Michela's car raced at 6 feet per second. Since $1 \text{ ft} = 0.305 \text{ m}$, the unit rate is $0.305 \times 6 = 1.83$ meters per second. The other car has a unit rate of $12 \div 5.2 = 2.3$ meters per second.
7. 1.6 meters per second

Lesson 19-2 Practice (p. 241):

8. 3 meters per second
9. The unit rates are all given for one second of the travel time, so the values can be compared easily.
10. a. 30 frames per second; 150 frames per 5 seconds $= 150 \div 5 \text{ sec} = 30$
 b. Sample answer: You could have all contestants film the race using the same frame speed, for example, 30 frames per second. The film with the least number of frames for the 10 meters of track would have the fastest time. This is because the faster a car goes, the fewer frames it takes to film it.

11. $x = 5$; check students' work.

12. Solve the proportion

$$\frac{\text{track length}}{\text{contestant's number of seconds}} = \frac{x}{1 \text{ second}} \text{ for each contestant.}$$

The smallest value of x represents the fastest car.

13. a. \$39.99 package: \$3.33 per mousetrap; \$45.99 package: \$3.07 per mousetrap
 b. The \$45.99 package is a better buy because the mousetraps have a lower unit cost.
 c. Answers will vary. Suppose she needs 28 mousetraps.
 $2 \text{ pkg of } 15 = 30$ and will cost $2 \times \$45.99 = \91.98 . There will be 2 extra traps. Since $12 \times 2 = 24$ and $24 < 28$, she would have to buy 3 pkg of 12, which will cost $3 \times \$39.99 = \119.97 . There will be 8 extra traps. If she needs 28, it is better to buy packages of 15.
14. She should purchase 1 package of 12 at \$39.99 because it has the lower total cost.
15. Sample answer: She can make a number line that represents 128 units. Since $\frac{12}{15} = \frac{4}{5}$, she can make rectangles that are 4 units and 5 units long to represent pkg of 12 and pkg of 15, respectively. She can use the rectangles to make tape diagrams below the number line to see how many pkg of each size it would take to have 128 mousetraps. The shorter tape tells the size and number of packages she should buy.