

Lesson

14-4

Decimal Division

Questions

- Find each quotient.
 - $57.985 \div 10$
 - $57.985 \div 100$
 - $57.985 \div 1000$
- Explain why dividing by 1000 is the same as multiplying by 0.001.
- Fill in the Blank** Use the number line below to help you see how many groups of 0.005 are in 0.035. So, $0.035 \div 0.005 = \underline{\quad? \quad}$.



- Do these problems all have the same quotient? Tell why or why not.

$$0.24 \overline{)21.6} \qquad 2.4 \overline{)216} \qquad 24 \overline{)2160}$$
- Write two decimal division problems that have the same quotient as $2.25 \div 0.375$.
- Multiple Choice** Which of the following means the same thing as $2.5 \overline{)0.75}$?

A $2.5 \div 0.75$ B $\frac{2.5}{0.75}$ C $\frac{3}{4} \div \frac{2}{5}$ D $\frac{3}{4} \div \frac{5}{2}$
- Tell whether the quotient is less than 1, equal to 1, or greater than 1.
 - $3.75 \div 0.375$
 - $0.333 \div 333$
 - $0.52 \div 0.520$
- Find each result.
 - $46 \div 46$
 - $46 \div 4.6$
 - $46 \div 0.46$
 - $46 \div 0.00046$
- Evaluate the expression.

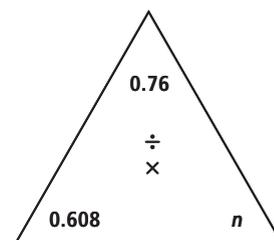
$$0.01 + 3.97 - 1000 \cdot 0.398 \div 100$$

10. The table at the right lists the mass of each major planet in our solar system relative to the mass of Earth. For instance, the mass of Mercury is about 5% of the mass of Earth. Neptune's mass is about 17 times that of Earth.
- Order the planets by their masses, from greatest to least.
 - Identify the planets that have a mass greater than that of Earth.
 - Identify the planets that have a mass less than that of Earth.
 - Is it true that one planet has a mass greater than all others put together? Justify your answer.
 - The mass of Earth is how many times as large as the mass of Mars? Give your answer to the nearest tenth.

Masses of Planets	
Planet	Mass (% of Earth's mass)
Mercury	0.0553
Venus	0.815
Earth	1.000
Mars	0.107
Jupiter	317.8
Saturn	95.159
Uranus	14.536
Neptune	17.147

Source: 2010 World Almanac and Book of Facts, pp. 340-343

11. Lorna bought 3.296 pounds of roast beef at a deli counter. She plans on making 14 sandwiches, each using $\frac{1}{4}$ pound of roast beef. Did Lorna buy enough roast beef? Explain your answer.
12. Evelyn made the fact triangle at the right to help her solve and check the equation $0.608n = 0.76$.
- Fill in the Blank** $0.76 \div 0.608 = \underline{\quad?}$
 - What is the value of n ?
 - Fill in the Blanks** to check your answer to Part b.
 $\underline{\quad?} \cdot 0.608 = \underline{\quad?}$



13. A rectangle has area 0.477 square meter and width 45 centimeters. What is its length?
14. A biker traveled 100 miles in 15 hours, 15 minutes. To the nearest tenth of a mile per hour, what was the biker's average speed?
15. Which is a better approximation to $\frac{4}{9}$, 0.44 or 0.45? Explain your answer.
16. It is impossible to write a terminating or repeating decimal which, when multiplied by itself, gives a product that is exactly 5. But you can find two such numbers that give a product that is close to 5.
- What whole number, which when multiplied by itself, gives a product that comes closest to 5?
 - To the nearest tenth, find the number which, when multiplied by itself, gives a product that is closest to 5.
 - To the nearest hundredth, find the number which, when multiplied by itself, gives a product that is closest to 5.

17. Mr. Maxwell kept a log, shown at the right, of the gasoline used by his car. Each time he filled up his tank, he recorded how many miles the car went between fill-ups, how many gallons he purchased, and the price he paid per gallon.

Log of Gasoline Purchased by Mr. Maxwell		
Miles Traveled	Gallons Purchased	Price per Gallon
557.2	15.832	\$3.069
520.4	14.999	\$3.119
395.9	12.608	\$3.079
562.2	15.794	\$2.969

- How many miles did the car travel in all?
 - How many gallons of gasoline did he purchase in all?
 - What is the average number of miles the car traveled per gallon of gasoline? Round to the nearest tenth.
 - What is the range in prices he paid for a gallon of gasoline?
18. In 1910, well before the days of calculators, the most important statistic in baseball was a player's batting average. A luxury car was promised to the player with the highest batting average. That year, Ty Cobb had 196 hits in 509 at-bats. Napoleon Lajoie had 227 hits in 591 at-bats.
- Who had the higher batting average, and by how much? (To find a player's batting average, divide the number of hits by the number of at-bats. Round to the nearest thousandth.)
 - That year, when the American League president, Ben Johnson, calculated the batting averages, he reported six decimal places for each average. Did he need all six places to show the difference? Why or why not?
 - Later research revealed that due to record-keeping errors, Cobb actually had 194 hits in 506 at-bats. Lajoie's statistics were correct. Who actually had the higher batting average, and by how much?
19. Which cereal box below gives you more cereal for your money?

