Lesson
9-9

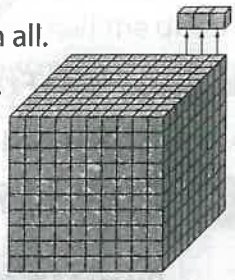
Understand It!
A fraction can also be represented by a decimal.

Thousandths

How are fractions related to decimals?

A large box is filled with cubes. There are 1,000 cubes in all. Each cube can be thought of as $\frac{1}{1,000}$ of the whole box.

Think about pulling 3 cubes from the box. Since one cube can be shown as $\frac{1}{1,000}$, this means that 3 cubes could be shown by $\frac{3}{1,000}$. How can you use a decimal to represent this fraction?



10 × 10 × 10

Guided Practice*

Do you know HOW?

In **1** through **4**, write each decimal as a fraction or mixed number.

1. 0.003 $\frac{3}{1,000}$

2. 0.050 $\frac{50}{1,000}$

3. 7.001 $7\frac{1}{1,000}$

4. 0.393 $\frac{393}{1,000}$

In **5** through **8**, write each fraction a decimal.

5. $\frac{389}{1,000}$ .389

6. $3\frac{673}{1,000}$ 3.673

7. $\frac{211}{1,000}$ .211

8. $\frac{90}{1,000}$ .090

Do you UNDERSTAND?

9. Writing to Explain How is $\frac{3}{10}$ different from $\frac{3}{1000}$ in place value?

10. How would you write the fraction of cubes that are left when 3 cubes are pulled from the box in the model above?

Independent Practice

In **11** through **18**, write each decimal as a fraction or mixed number.

11. 0.007 $\frac{7}{1,000}$

12. 0.008 $\frac{8}{1,000}$

13. 0.065 $\frac{65}{1,000}$

14. 0.900 $\frac{900}{1,000}$

15. 0.832 $\frac{832}{1,000}$

16. 0.023 $\frac{23}{1,000}$

17. 3.078 $3\frac{78}{1,000}$

18. 5.001 $5\frac{1}{1,000}$

In **19** through **26**, write each fraction or mixed number as a decimal.

19. $\frac{434}{1,000}$ .434

20. $3\frac{499}{1,000}$ 3.499

21. $\frac{873}{1,000}$ .873

22. $\frac{309}{1,000}$ .309

23. $1\frac{17}{1,000}$ 1.017

24. $\frac{9}{1,000}$ .009

25. $\frac{990}{1,000}$ .990

26. $5\frac{707}{1,000}$ 5.707

*For another example, see Set I on page 253.

The word name for $\frac{3}{1,000}$ is three thousandths. A decimal place-value chart can help you determine the decimal.

ones		tenths	hundredths	thousandths
0	.	0	0	3

So, $\frac{3}{1,000}$ can be represented by the decimal 0.003.

9-9

Problem Solving

27. A bagel costs $1.25, the cream cheese costs $0.30, and a glass of juice costs $2.25. How much change would you get from $10.00 if you buy all three items? 1.25 + .30 + 2.25 = $3.80 $10.00 − $3.80 = $6.20

28. The largest egg on record was laid by an ostrich. The weight was 5.476 pounds. Which digit is in the tenths place?

A 4 C 6

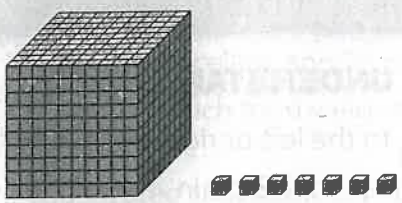
B 5 D 7

29. Write the fractions $\frac{9}{10}$, $\frac{9}{100}$, and $\frac{9}{1,000}$ as decimals.

.9, .09, .009

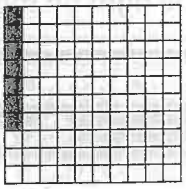
30. Frank reasoned that $\frac{97}{1,000}$ can be written as 0.97. Is this correct? If not, justify your reasoning. NO .97 = $\frac{97}{100}$ .097 = $\frac{97}{1,000}$

31. Writing to Explain How many cubes are in the box? What fraction of the entire box do the 7 cubes represent? Explain your answer.



10 × 10 × 10

32. What part of the entire square is shaded?



A 0.007 C 0.7

B 0.07 D 7.0

33. Which illustrates the Associative Property of Multiplication?

A $5 \times 7 = 7 \times 5$

B $0 \times 8 = 0$

C $6 \times 1 = 6$

D $1 \times (2 \times 3) = (1 \times 2) \times 3$

Name _____

Daily Spiral Review
9-9

1. A swimmer wins a race by $\frac{2}{10}$ of a second. Which decimal is equal to $\frac{2}{10}$?

   A 0.02
   B 0.20
   C 2.00
   D 2.10

2. A baker uses $\frac{10}{4}$ cups of flour to make bread. Which decimal is equal to $\frac{10}{4}$?

   A 4.1
   B 2.5
   C 2.2
   D 0.4

3. What fraction of this tile floor is white?

   A $\frac{5}{12}$
   B $\frac{12}{7}$
   C $\frac{5}{7}$
   D $\frac{7}{12}$

4. Marti's cat weighs 12.37 pounds. What is this weight written as a mixed number?

   $12\frac{37}{100}$

5. The table shows the cost of adult admissions to a state park.

Number of Adults	4	5	7	9
Total Cost	$16	$20	$28	?

   What is the total cost for a group of 9 adults to go to the state park?

   $36

6. What is the value of the underlined digit?

   34.2̲05

   two tenths, or $\frac{2}{10}$

Daily Spiral Review 9-9

Problem of the Day 9-9

The Hawks soccer team played a total of 24 games. They won 6 more games than they lost, and they tied 2 games. How many games did they win?

14 games won
8 games Lost

22
+ 2 tie games

24 total games

Problem of the Day 9-9

Name _____

Quick Check
9-9

1. What is 0.009 as a fraction?

   A $\frac{9}{1}$

   B $\frac{9}{10}$

   C $\frac{9}{100}$

   (D) $\frac{9}{1,000}$

2. What is $\frac{94}{1,000}$ as a decimal?

   A 0.904

   (B) 0.094

   C 0.0904

   D 0.0094

3. A kitten weighed 0.128 kilograms when it was born. What is 0.128 as a fraction?

   (A) $\frac{128}{1,000}$

   B $\frac{128}{100}$

   C $\frac{128}{10}$

   D $\frac{128}{1}$

4. **Writing to Explain** Jessie has a box of 1,000 marbles. He has 75 yellow marbles, 230 red marbles, 331 blue marbles, and 364 green marbles. What fraction of his marbles are yellow? What fraction of his marbles are red? Write each fraction as a decimal. Explain how you found each of the fractions.

See student samples at the right.

$\frac{75}{1000}$ yellow = .075 yellow

$\frac{230}{1000}$ red = .230 red

Quick Check 9-9