

• Naming Decimal Numbers

Power Up

facts

mental math

problem solving

Power Up E

- Powers/Roots:** $\sqrt{81}$
- Number Sense:** The cake was cut into 12 slices, and 5 slices have been eaten. What fraction of the cake remains?
- Number Sense:** 10×10
- Number Sense:** $10 \times 10 \times 10$
- Fractional Parts:** One tenth of 23 is $2\frac{3}{10}$. How much is $\frac{1}{10}$ of 43? ... $\frac{1}{10}$ of 51?
- Estimation:** Shaquille bought a pencil and a compass for \$3.52. He has \$6.78. If Shaquille used compatible numbers, approximately how much money would he have left?
- Probability:** If the chance of rain is 60%, what is the chance it will not rain?
- Calculation:** Find 25% of 40, $+ 1$, $\times 3$, $- 1$, $\div 4$

Choose an appropriate problem-solving strategy to solve this problem. To decide which homework assignment to work on first, Jamie labeled 5 index cards as shown. She plans to turn the cards face down, mix them up, and then draw one card. What is the probability she will choose a subject other than math?

SOCIAL
STUDIES

MATH

SCIENCE

READING

MATH

Texas Essential Knowledge and Skills

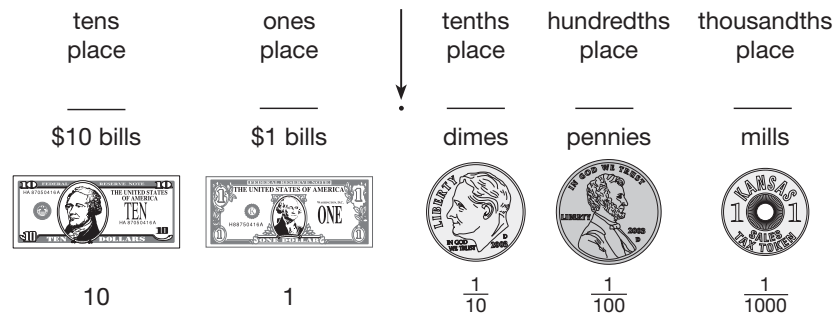
- (5.1)(B) use place value to read and write decimals through the thousandths place.
- (5.2)(D) use models to relate decimals to fractions that name tenths, hundredths and thousandths.
- (5.10)(A) perform simple conversions within the same measurement system.
- (5.12)(A) use fractions to describe the results of an experiment.
- (5.14)(B) solve problems that incorporate understanding the problem, making a plan, carrying out the plan.

New Concept

Math Language

The *mill* was first introduced in 1786 by the Continental Congress as a money amount worth $\frac{1}{1000}$ of the federal dollar. Some states issued a token in this amount as a way to pay sales tax, but by 1960 the mill was no longer made. Today, the cost of gasoline is still represented in tenths of a cent. For example, \$3.019 per gallon is three dollars, one penny, and nine mills.

In this lesson we will name decimal numbers that have one, two, or three decimal places. The third place to the right of the decimal point is the thousandths place, and its value is $\frac{1}{1000}$. We do not have a coin for $\frac{1}{1000}$, but we do have a name for $\frac{1}{1000}$ of a dollar. A thousandth of a dollar is a **mill**. Ten mills are equal to one penny.

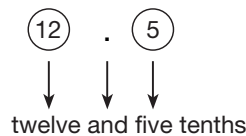


To name a decimal number that has digits on both sides of the decimal point, we mentally break the number into two parts: the whole-number part and the fraction part. The whole-number part is to the left of the decimal point. The fraction part is to the right of the decimal point.

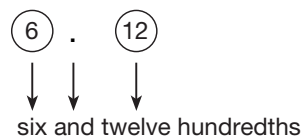
To read this decimal number: 12.5

we mentally break it into two parts, like this: (12).(5)

We read the whole-number part first, say “and” at the decimal point, and then read the fraction part. To read the fraction part, we read the digits as though they name a whole number. Then we say the place value of the last digit. The last digit of 12.5 is 5. It is in the tenths place.



We read other decimal numbers using the same process. To read the fraction part of 6.12, read the digits after the decimal as a whole number and then say the place value of the last digit. The last digit of 6.12 is 2, and it is in the hundredths place.



Example 1

Use words to name the decimal number 12.25.

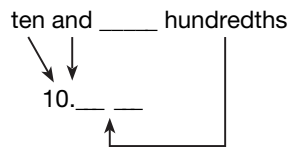
We break the number into two parts, like this: $(12) \cdot (25)$

We name the whole-number part, write “and,” and then name the fraction part. Then we write the place value of the last digit, which in this case is *hundredths*. We write **twelve and twenty-five hundredths**.

Example 2

Use digits to write the decimal number ten and twelve hundredths.

The whole-number part is ten. The fraction part is twelve hundredths. The word *hundredths* means there are two places to the right of the decimal point.



The twelve is written in the two decimal places. The answer is **10.12**.

Thinking Skill

Connect

What would this amount be in dollars and cents?

Example 3

The door was 2.032 meters tall. Write the height of the door with words and as a mixed number.

We break the number into two parts. The place value of the last digit is thousandths.

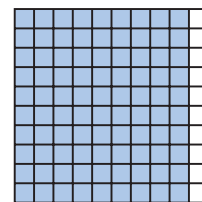
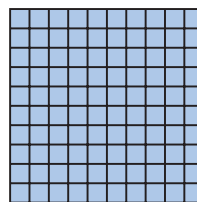
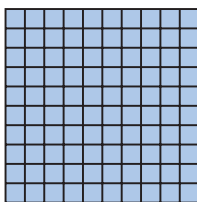
$$(2) \cdot (032)$$

The height of the door is **two and thirty-two thousandths meters** or $2\frac{32}{1000}$ meters.

Analyze How many millimeters tall is the door? Explain your reasoning.

Lesson Practice

- a. **Represent** Write the decimal number and the mixed number for the model below. Then use words to name the decimal number.



Represent Use words to name each decimal number:

- b. 24.42
- c. 0.125
- d. 10.075

Represent Use digits to write each decimal number:

- e. twenty-five and fifty-two hundredths
- f. thirty and one tenth
- g. seven and eighty-nine hundredths
- h. two hundred thirty-four thousandths

A mill is $\frac{1}{1000}$ of a dollar. Write the amounts in decimal word form, as a decimal, and as a fraction for the pictorial models below.



Written Practice

Distributed and Integrated

1. It takes Keb 20 minutes to walk to school. What time should he leave for school if he wants to arrive at 8:10 a.m.?
(28)
2. To improve her physical condition, Arianna swims, bikes, and runs.
(27) Every day Arianna swims 40 lengths of a pool that is 25 meters long. How far does Arianna swim each day?

3. Marites has read $\frac{1}{3}$ of a 240-page book. How many pages has she read? What percent of the book has she read?
(Inv. 3, 46)

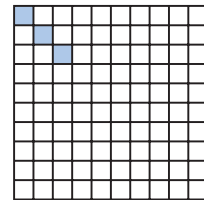
4. If 3 tickets cost \$12, how many tickets can Cole buy with \$20?
(49)

*5. Arrange these fractions in order from least to greatest:
(23, 59)

$$\frac{5}{5}, \frac{3}{4}, \frac{2}{6}, \frac{1}{2}$$

*6. **Analyze** A number is divisible by 4 if it can be divided by 4 without leaving a remainder. The numbers 8, 20, and 32 are all divisible by 4. What number between 10 and 20 is divisible by both 4 and 6?
(22, 42)

7. Use a fraction and a decimal number to name the shaded portion of this square:
(67)



*8. Which digit in 16.43 is in the tenths place?
(58)

*9. **Represent** The length of the notebook paper was 0.279 meter. Write 0.279 with words.
(68)

*10. **Connect** Use a mixed number and a decimal number to name the point on this number line marked by the arrow:
(38, 66)



*11. **Represent** Write the decimal number 0.03 as a fraction.
(67)

*12. A jewelry designer used 81 grams of gold alloy to make 10 identical earrings. What was the weight in grams of the gold alloy in each earring?
(58)

13. The length of \overline{RT} is 100 millimeters. If the length of \overline{RS} is 30 millimeters, then how long is \overline{ST} ?
(61)



$$\begin{array}{r} 14. \quad 87,906 \\ \quad 71,425 \\ + 57,342 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 407 \\ \quad \times 819 \\ \hline \end{array}$$

$$16. \quad \frac{\$8.76}{6}$$

$$17. \quad 600 \div (60 \div 6)$$

$$18. \quad 40 \overline{)5860}$$

19. If each side of a regular hexagon is 4 inches long, then what is the perimeter of the hexagon?

$$20. \quad 341 + 5716 + 98 + 492 + 1375$$

$$21. \quad 7 \times 6 \times 5 \times 4$$

$$*22. \quad 5\frac{1}{4} - a3 - 1\frac{3}{4}b$$

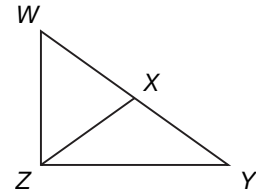
$$*23. \quad 3\frac{1}{6} + 2\frac{2}{6} + 1\frac{3}{6}$$

$$24. \quad 20w = 300$$

25. Compare: 365×1 \bigcirc $365 \div 1$

26. **Verify** William's company made \$30,000 last month. As the owner, William received one tenth of the money. How much money did William receive? Explain how you found your answer.

*27. **Conclude** In this figure there are three triangles. Triangle WYZ is a right triangle. Which triangle appears to be an obtuse triangle?



28. A coin is tossed once.

- List all the possible outcomes.
- What fraction describes the probability of each outcome?

*29. **Represent** Write 0.625 with words.

*30. **Represent** Use digits to write the decimal number twelve and seventy-five hundredths.