Relate Decimals and Fractions

Name: _____

Prerequisite: Find Equivalent Fractions

Study the example showing how to identify equivalent fractions with denominators of 10 and 100. Then solve problems 1–5.
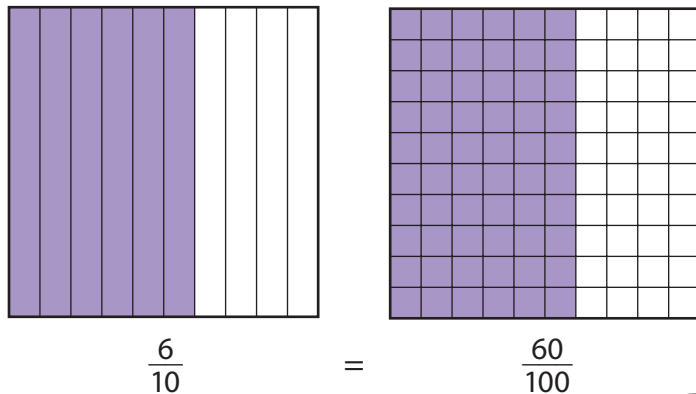
Example

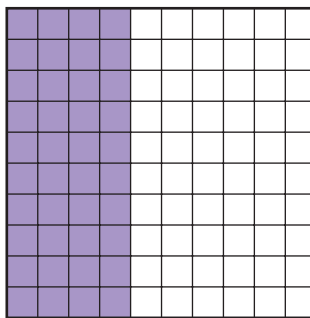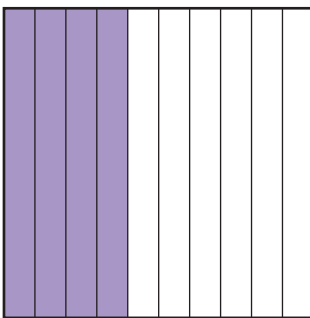Explain how $\frac{6}{10} = \frac{60}{100}$.

Use multiplication to find equivalent fractions.

$$\frac{6}{10} = \left(\frac{6 \times 10}{10 \times 10} \right) = \frac{60}{100}$$

Use models to show equivalent fractions.

$$\frac{6}{10} \qquad = \qquad \frac{60}{100}$$

1 Write the fractions that the models below show.

_____   _____

2 Look at problem 1. Use multiplication to find the equivalent fractions.

_____

Vocabulary

equivalent fractions two or more fractions that name the same part of a whole.

Solve.

3 Fill in the blanks with numbers and fractions to make true sentences.

a. _____ $+ \frac{15}{100} = \frac{55}{100}$

_____ tenths $+$ _____ hundredths $= 55$ hundredths.

b. _____ $+ \frac{4}{10} = \frac{55}{100}$

_____ hundredths $+$ _____ tenths $= 55$ hundredths.

c. _____ $+ \frac{5}{100} = \frac{55}{100}$

_____ tenths $+$ _____ hundredths $= 55$ hundredths.

d. _____ $+ \frac{25}{100} = \frac{55}{100}$

_____ tenths $+$ _____ hundredths $= 55$ hundredths.

Of the 100 students in the fourth grade, 70 students are girls.

4 Write a fraction in tenths and a fraction in hundredths to tell what fraction of the fourth-grade students are girls.

_____

5 Write a fraction in tenths and a fraction in hundredths to tell what fraction of the fourth-grade students are boys.
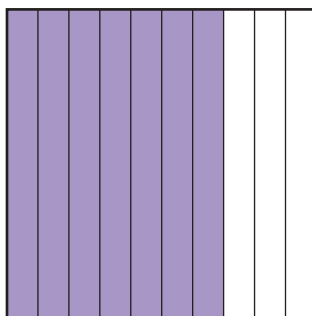
_____

Name: _____

Name the Same Amount

Study the example showing ways to name the same amount as a fraction and a decimal. Then solve problems 1–7.
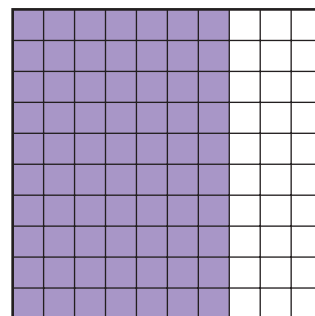
Example

How do you write decimals equivalent to $\frac{7}{10}$ and $\frac{70}{100}$?

The model shows $\frac{7}{10}$.

The model shows $\frac{70}{100}$.

A place-value chart shows the value of $\frac{7}{10}$ and $\frac{70}{100}$.

$\frac{7}{10} = 0.7$ $\frac{70}{100} = 0.70$

Ones	•	Tenths	Hundredths
0	•	7	0

1 What decimal is equivalent to $\frac{3}{10}$?

Fill in the place-value chart to show the decimal.

Ones	•	Tenths
	•	

2 What decimal is equivalent to $\frac{55}{100}$?

Fill in the place-value chart to show the decimal.

Ones	•	Tenths	Hundredths
	•		

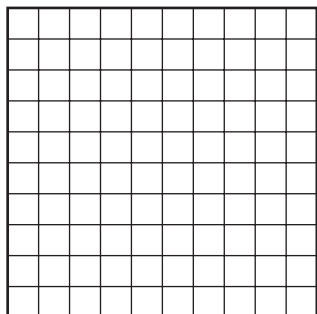**3** Write a decimal equivalent to $\frac{75}{100}$. _____

Vocabulary

decimal fraction (or decimal) a number containing a decimal point that separates a whole from fractional place values, such as tenths and hundredths.
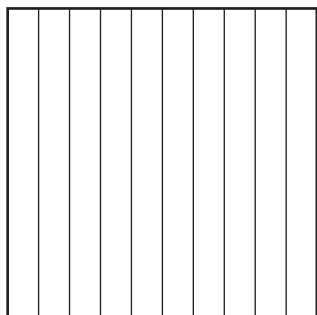
0.7 and 0.70 are decimals.

Solve.

4 What decimal is equivalent to $\frac{80}{100}$? Shade the model below to show the fraction and the decimal. Then write the decimal.

$$\frac{80}{100} = \underline{\hspace{2cm}}$$

5 Look at problem 4. Shade the model below to show an equivalent tenths fraction and decimal. Then write the fraction and decimal.

$$\underline{\hspace{1.5cm}} = \underline{\hspace{1.5cm}}$$

6 Use what you know about equivalent fractions to explain why 0.8 and 0.80 are equivalent.

_____

_____

7 Find the sum of $\frac{80}{100}$ and $\frac{20}{100}$. Then use what you know about equivalent fractions to explain why $0.8 + 0.2 = 1$.

_____

_____

_____

Name: _____

Write a Decimal as an Equivalent Fraction

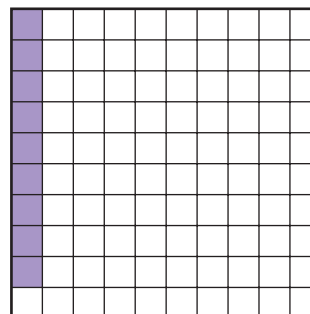**Study the example problem showing how to write a decimal as an equivalent fraction. Then solve problems 1–8.**

Example

Alanna has an assortment of books in her bookcase. 0.09 of her books are comic books. What fraction of the books are comic books?

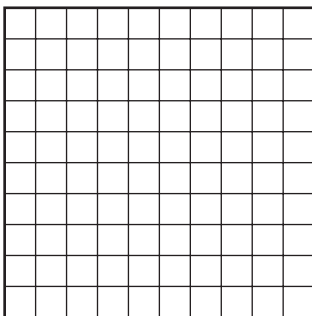**Decimal:** 0.09

Words: 9 hundredths

Fraction: $\frac{9}{100}$

$\frac{9}{100}$ of the books are comic books.

Ones	.	Tenths	Hundredths
0	.	0	9

1. Shade the model below to show 0.34.

2. Show 0.34 in a place-value chart.

Ones	.	Tenths	Hundredths
	.		

3. Write 0.34 in words. _____

4. Write 0.34 as a fraction. _____

Solve.

5 Tell whether each number sentence is *True* or *False*.

a. $0.3 = \frac{3}{100}$ ☐ True ☐ False

b. $0.03 = \frac{3}{100}$ ☐ True ☐ False

c. $0.3 = \frac{30}{100}$ ☐ True ☐ False

d. $0.3 = \frac{3}{10}$ ☐ True ☐ False

6 Write two equivalent fractions to 0.3.

_____

7 Which of the following names the same number as 0.62? Circle the letter for all that apply.

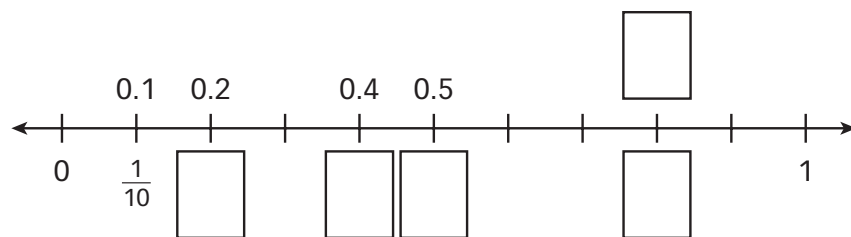**A** sixty-two hundredths

B six tenths and 2 hundredths

C $\frac{62}{10}$

D $\frac{62}{100}$

8 The number line below shows 1 whole divided into tenths. Write numbers in the boxes to label the missing fractions and decimal. Explain how you know what numbers to write.

_____

_____

_____

_____

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Solve the problems.

1 What is 0.5 written as a fraction?
Circle the letter for all that apply.

A $\frac{5}{100}$

B $\frac{5}{10}$

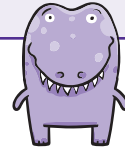**C** $\frac{50}{100}$

D $\frac{50}{10}$

How can you say the decimal in words?

2 Rita correctly answered 9 questions out of 10 on a test. What fraction of the test questions did Rita answer incorrectly?

A $\frac{9}{10}$

B $\frac{9}{100}$

C $\frac{1}{10}$

D $\frac{1}{100}$

Patrick chose **A** as the correct answer. How did he get that answer?

_____

_____

_____

_____

_____

What fraction represents all the questions?

Solve.

3 Austin bought an eraser for 65 cents and a pencil for 20 cents. What fraction of a dollar did he spend? Write the fraction as a decimal.

Show your work.

What fraction of a dollar is 1 cent?

Solution: _____

4 Tell whether each number below is equivalent to $\frac{15}{100}$.

How do you write this fraction in words and as a decimal?

a. fifteen hundredths ☐ Yes ☐ No

b. 1.5 ☐ Yes ☐ No

c. $\frac{15}{10}$ ☐ Yes ☐ No

d. 0.15 ☐ Yes ☐ No

5 Mackenzie has 1 dollar, 2 dimes, and 3 pennies. Jorge has only dimes and pennies but has the same amount of money as Mackenzie. How many dimes and pennies could Jorge have?

Show your work.

Can you represent the value of a dollar, a dime, and a penny as fractions or decimals to help you solve this problem?

Solution: _____

_____