

Name \_\_\_\_\_

## Relate Tenths and Decimals

**Essential Question** How can you record tenths as fractions and decimals?

**Common Core** Number and Operations—  
Fractions—4.NF.C.6  
**MATHEMATICAL PRACTICES**  
MP2, MP3, MP4

### Unlock the Problem

Ty is reading a book about metamorphic rocks. He has read  $\frac{7}{10}$  of the book. What decimal describes the part of the book Ty has read?

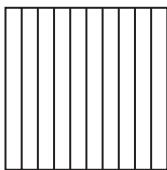


A **decimal** is a number with one or more digits to the right of the **decimal point**. You can write tenths and hundredths as fractions or decimals.

### One Way Use a model and a place-value chart.

**Fraction**

Shade  $\frac{7}{10}$  of the model.



**Think:** The model is divided into 10 equal parts. Each part represents one **tenth**.

Write: \_\_\_\_\_

Read: seven tenths

**Decimal**

$\frac{7}{10}$  is 7 tenths.

Ones	.	Tenths	Hundredths
	.		

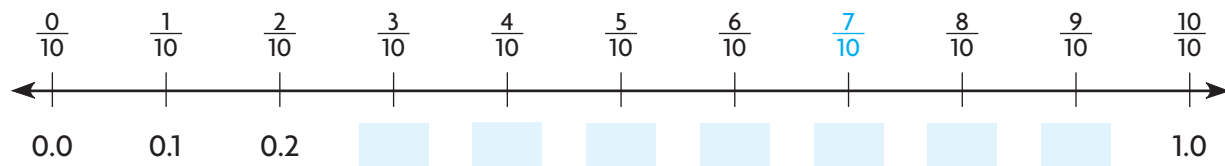
↑ decimal point

Write: \_\_\_\_\_

Read: \_\_\_\_\_

### Another Way Use a number line.

Label the number line with decimals that are equivalent to the fractions. Locate the point  $\frac{7}{10}$ .



\_\_\_\_\_ names the same amount as  $\frac{7}{10}$ .

So, Ty read 0.7 of the book.

**Math Talk**

**MATHEMATICAL PRACTICES 2**

**Use Reasoning** How is the size of one whole related to the size of one tenth?

- How can you write 0.1 as a fraction? Explain.

Tara rode her bicycle  $1\frac{6}{10}$  miles. What decimal describes how far she rode her bicycle?

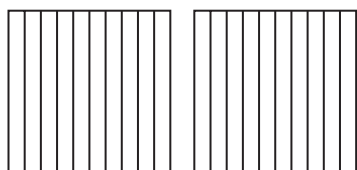
You have already written a fraction as a decimal. You can also write a mixed number as a decimal.



**One Way** Use a model and a place-value chart.

**Fraction**

Shade  $1\frac{6}{10}$  of the model.



Write: \_\_\_\_\_

Read: one and six tenths

**Decimal**

$1\frac{6}{10}$  is 1 whole and 6 tenths.

**Think:** Use the ones place to record wholes.

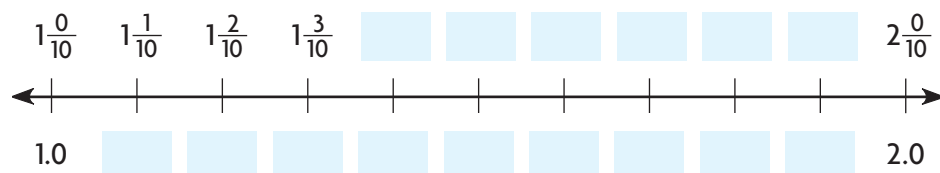
Ones	.	Tenths	Hundredths
	.		

Write: \_\_\_\_\_

Read: \_\_\_\_\_

**Another Way** Use a number line.

Label the number line with equivalent mixed numbers and decimals. Locate the point  $1\frac{6}{10}$ .

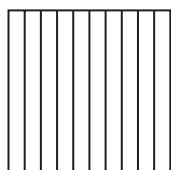


\_\_\_\_\_ names the same amount as  $1\frac{6}{10}$ .

So, Tara rode her bicycle \_\_\_\_\_ miles.

**Try This!** Write 1 as a fraction and as a decimal.

Shade the model to show 1.



Fraction: \_\_\_\_\_

**Think:** 1 is 1 whole and 0 tenths.

Ones	.	Tenths	Hundredths
	.		

Decimal: \_\_\_\_\_

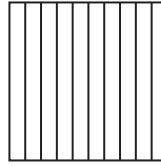
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## Share and Show



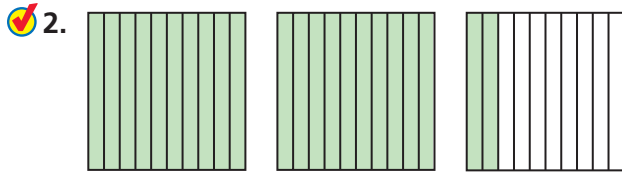
1. Write five tenths as a fraction and as a decimal.

Fraction: \_\_\_\_\_ Decimal: \_\_\_\_\_

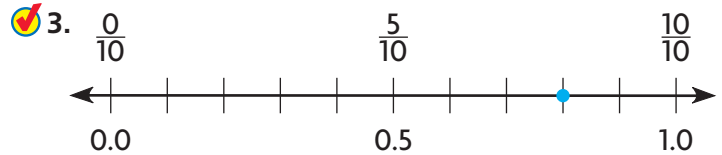


Ones	.	Tenths	Hundredths
	.		

Write the fraction or mixed number and the decimal shown by the model.



\_\_\_\_\_



\_\_\_\_\_

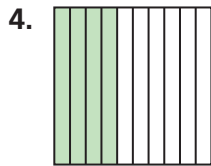


### MATHEMATICAL PRACTICES 6

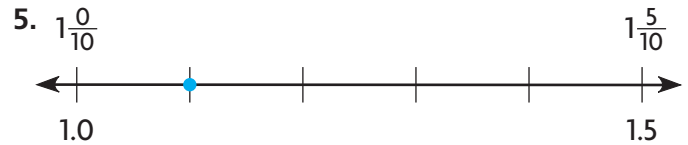
**Attend to Precision** How can you write  $1\frac{3}{10}$  as a decimal? Explain.

## On Your Own

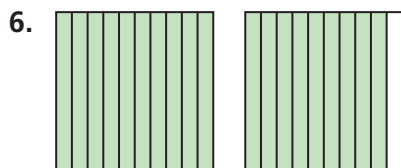
Write the fraction or mixed number and the decimal shown by the model.



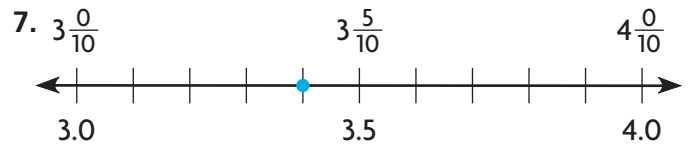
\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_

**Practice: Copy and Solve** Write the fraction or mixed number as a decimal.

8.  $5\frac{9}{10}$

9.  $\frac{1}{10}$

10.  $\frac{7}{10}$

11.  $8\frac{9}{10}$

12.  $\frac{6}{10}$

13.  $6\frac{3}{10}$

14.  $\frac{5}{10}$

15.  $9\frac{7}{10}$

# Problem Solving • Applications

Use the table for 16–19.

16. What part of the rocks listed in the table are igneous? Write your answer as a decimal.

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17. Sedimentary rocks make up what part of Ramon's collection? Write your answer as a fraction and in word form.

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18. **THINK SMARTER** What part of the rocks listed in the table are metamorphic? Write your answer as a fraction and as a decimal.



19. **MATHEMATICAL PRACTICE 5 Communicate** Niki wrote the following sentence in her report: "Metamorphic rocks make up 2.0 of Ramon's rock collection." Describe her error.

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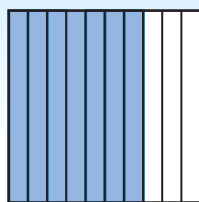
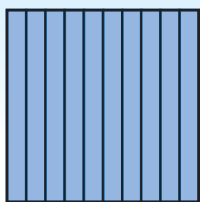


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20. **GO DEEPER** Josh paid for three books with two \$20 bills. He received \$1 in change. Each book was the same price. How much did each book cost?

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21. **THINK SMARTER** Select a number shown by the model. Mark all that apply.



$$1\frac{7}{10}$$

$$\frac{70}{10}$$

$$1.7$$

$$7$$

$$0.7$$

$$\frac{17}{10}$$

## Ramon's Rock Collection

Name	Type
Basalt	Igneous
Rhyolite	Igneous
Granite	Igneous
Peridotite	Igneous
Scoria	Igneous
Shale	Sedimentary
Limestone	Sedimentary
Sandstone	Sedimentary
Mica	Metamorphic
Slate	Metamorphic



▲ Granite–Igneous



▲ Mica–Metamorphic



▲ Sandstone–Sedimentary

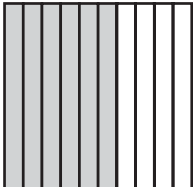
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Relate Tenths and Decimals

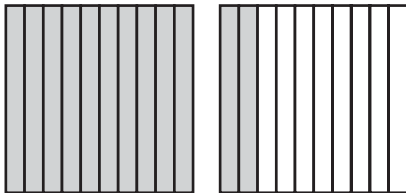


**COMMON CORE STANDARD—4.NF.C.6**  
Understand decimal notation for fractions, and compare decimal fractions.


Write the fraction or mixed number and the decimal shown by the model.

1.  Think: The model is divided into 10 equal parts. Each part represents one tenth.

$\frac{6}{10}$ ; 0.6  
\_\_\_\_\_

2. 

\_\_\_\_\_

3. 

\_\_\_\_\_

Write the fraction or mixed number as a decimal.

4.  $\frac{4}{10}$

\_\_\_\_\_

5.  $3\frac{1}{10}$

\_\_\_\_\_

6.  $\frac{7}{10}$

\_\_\_\_\_

7.  $6\frac{5}{10}$

\_\_\_\_\_

8.  $\frac{9}{10}$

\_\_\_\_\_

Problem Solving 

9. There are 10 sports balls in the equipment closet. Three are kickballs. Write the portion of the balls that are kickballs as a fraction, as a decimal, and in word form.

\_\_\_\_\_

10. Peyton has 2 pizzas. Each pizza is cut into 10 equal slices. She and her friends eat 14 slices. What part of the pizzas did they eat? Write your answer as a decimal.

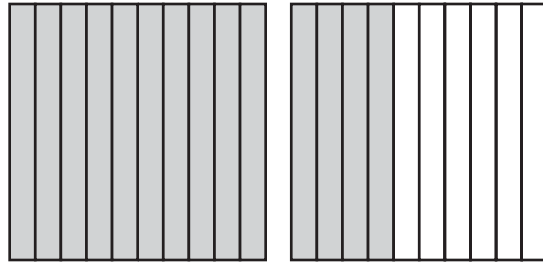
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11.  *Math* Do 0.3 and 3.0 have the same value? Explain.

\_\_\_\_\_  
\_\_\_\_\_

## Lesson Check (4.NF.C.6)

- Valerie has 10 CDs in her music case. Seven of the CDs are pop music CDs. What is this amount written as a decimal?
- What decimal amount is modeled below?




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## Spiral Review (4.OA.B.4, 4.NF.A.1, 4.NF.B.3b)

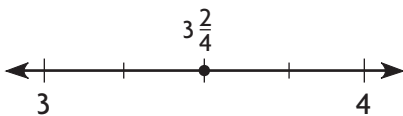
- Write one number that is a factor of 13.
- An art gallery has 18 paintings and 4 photographs displayed in equal rows on a wall, with the same number of each type of art in each row. What could be the number of rows?

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- How do you write the mixed number shown as a fraction greater than 1?
- What fraction of this model, in simplest form, is shaded?




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