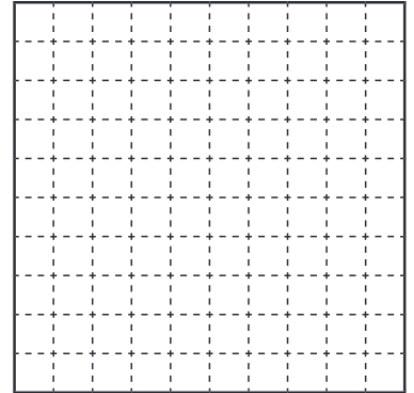


Decimal fractions: Reviewing tenths and hundredths (area model)

This large square represents one whole.

Color parts in red to match the number on the expanders below.



Write a common fraction to match.
Then write the decimal fraction match.

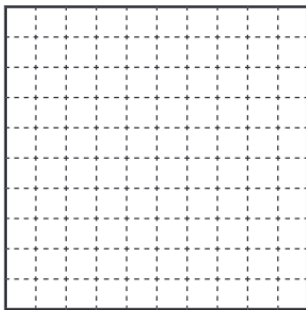
Color more parts in blue.

Write the common fraction to match the total amount shaded.
Then write the decimal fraction to match.

Each large square is one whole.

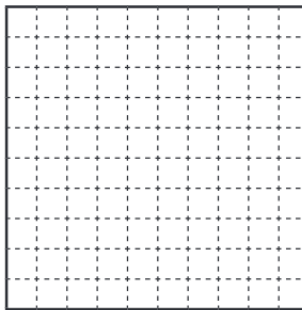
Color parts to show the decimal fraction. Then write the matching common fraction.

a.



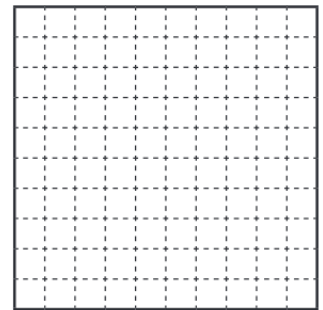
0.78 is
equivalent to

b.



0.9 is
equivalent to

c.



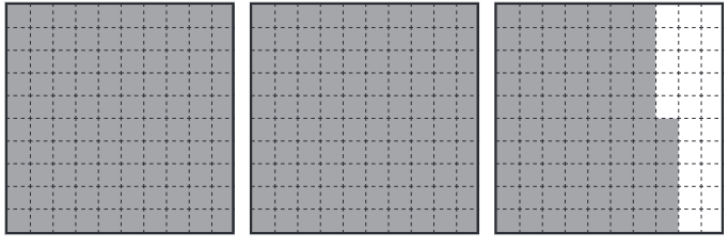
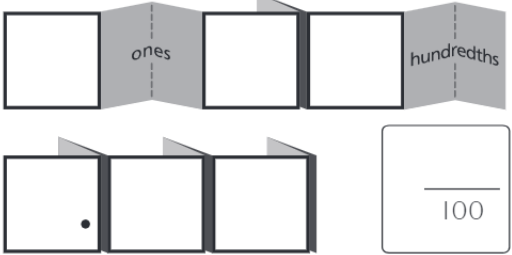
0.27 is
equivalent to



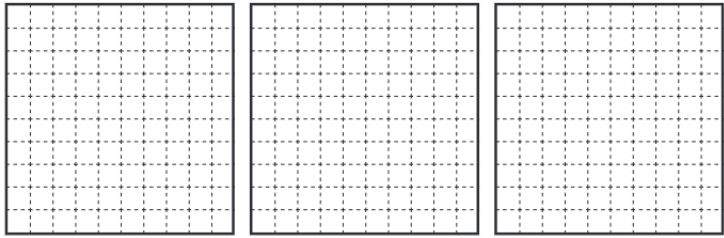
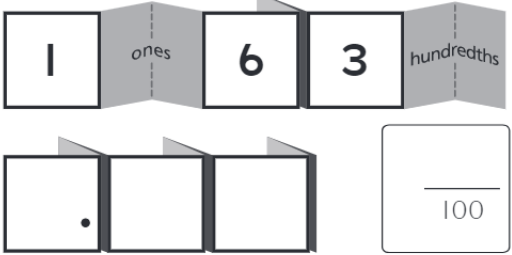
Decimal fractions: Reviewing tenths and hundredths (area model)

Complete the missing parts. Each large square is one whole.

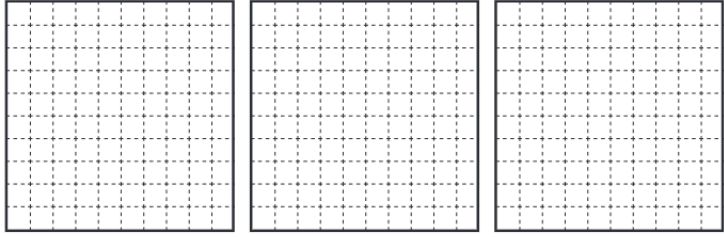
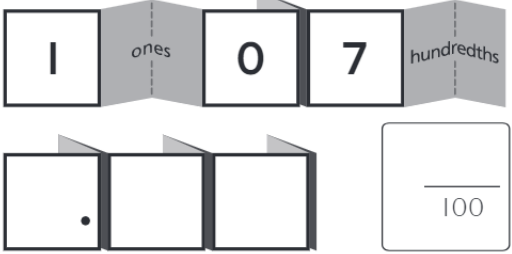
a.

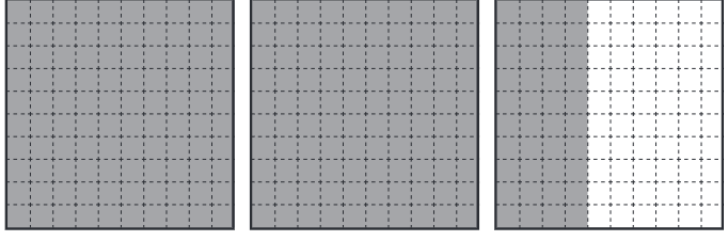
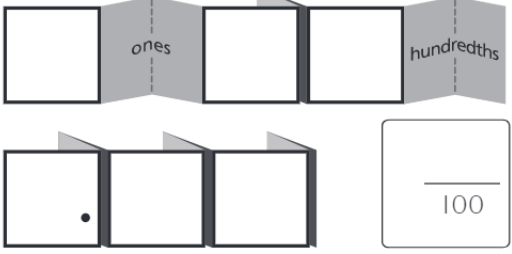
b.

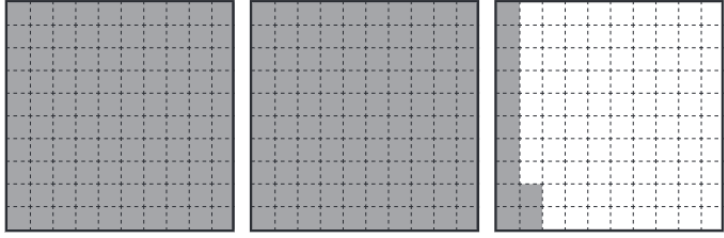
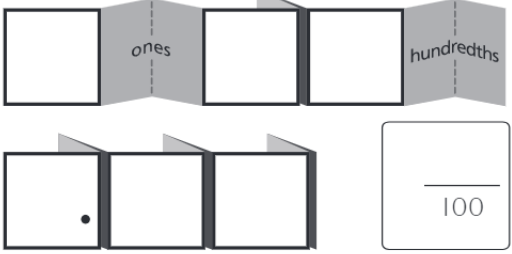
c.

d.

e.

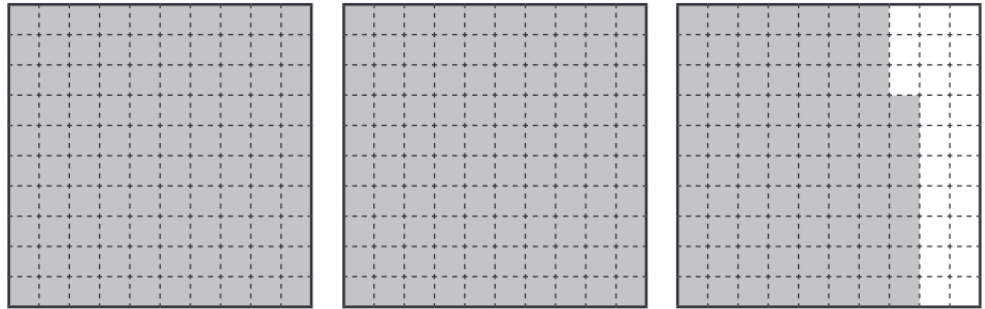




In this activity, fractions shown on a hundredths square are represented as a common fraction and as a decimal fraction.

Decimal fractions: Reviewing tenths and hundredths (number line)

Each large square represents one whole.

Write the decimal fraction to match the amount that is shaded.



On this number line, the distance between each whole number is one whole.

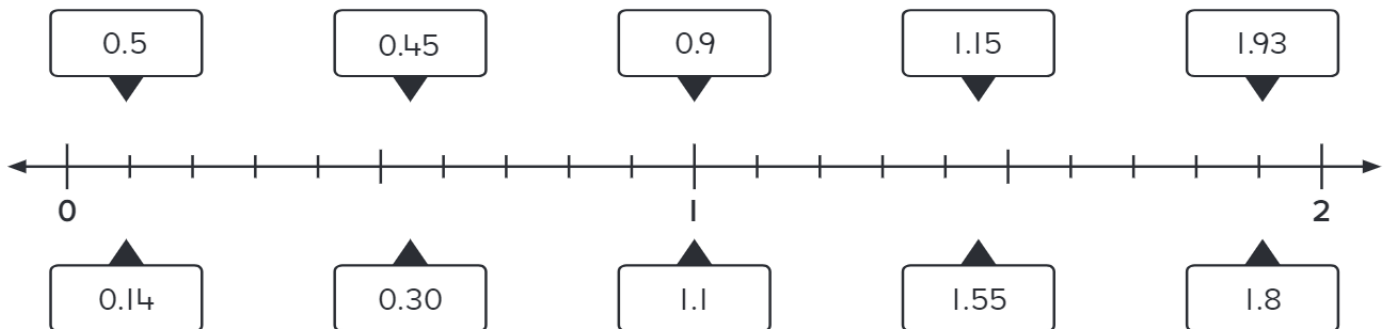
Mark the position of 0.2 and 0.55 on the number line.



Circle the section of the number line above that represents decimal fractions greater than 1.6 but less than 1.9. Write two numbers you could show in that section.

Mark the position of 1.2 and 1.20 on the number line. Write what you notice.

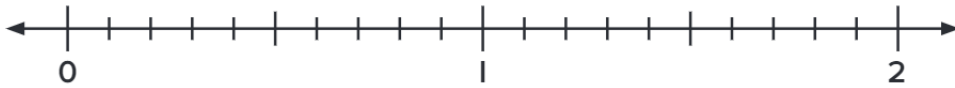
Draw a line to show the location of each decimal fraction. Be as accurate as possible.



Decimal fractions: Reviewing tenths and hundredths (number line)

On each number line, the distance between each whole number is one whole. Complete the missing parts.

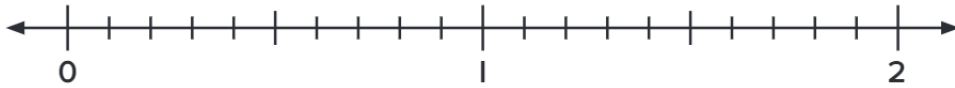
a.



0.	4	2
----	---	---

	100

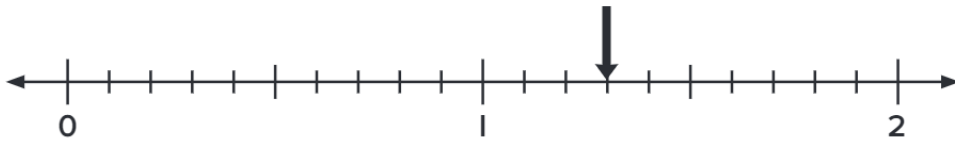
b.



	.		
--	---	--	--

	68
	100

c.



	.		
--	---	--	--

	100

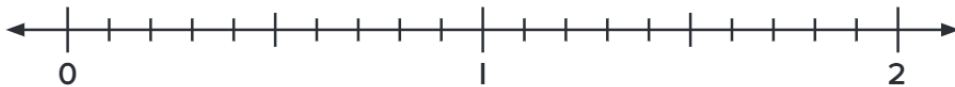
d.



0.	8	6
----	---	---

	100

e.



	.		
--	---	--	--

	52
	100



Decimal fractions: Introducing thousandths

Complete the **first row** of this table to describe one-tenth of one whole.

Fraction word	Ones	Tenths	Hundredths	Thousandths	Decimal fraction	Common fraction
	0	1	0	0	0.1	

Complete the **second row** of the table to describe one-hundredth (one-tenth of one-tenth).

The large square below is one whole.
Write the number of equal parts it shows.

Complete the **third row** of the table to above to describe one-thousandth (one-tenth of one-hundredth).

Color parts of the large square to match the decimal fraction on this expander.

0

ones

5

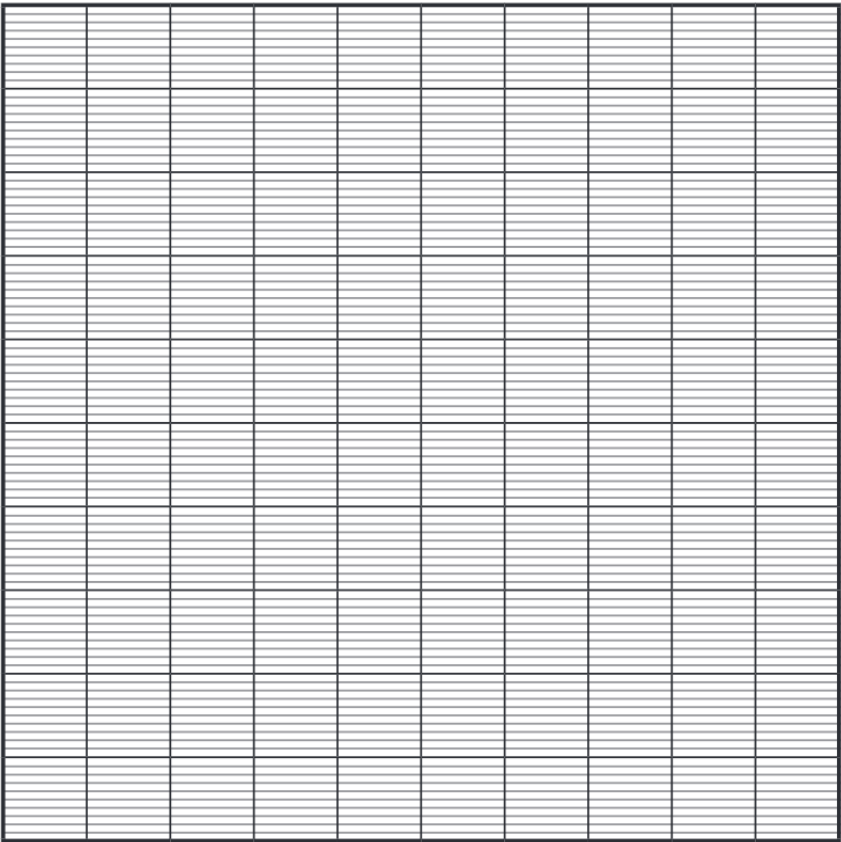
tenths

1

hundredths

3

thousandths

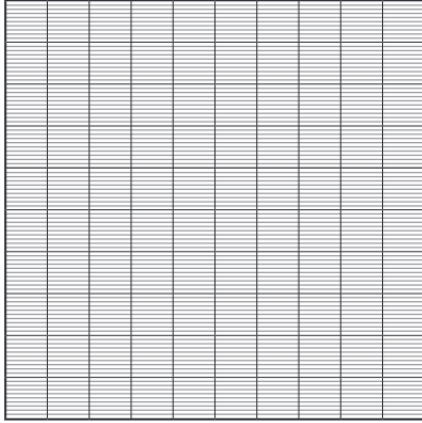


This activity uses a thousandths grid to show the place-value aspect of thousandths and their relationship to tenths and hundredths.

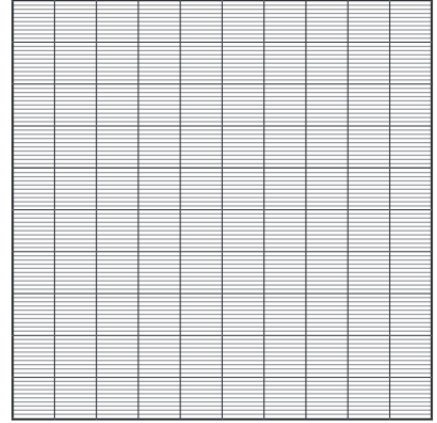
Decimal fractions: Introducing thousandths

Each large square is one whole. Shade parts of the whole to match the decimal fraction on the expander.

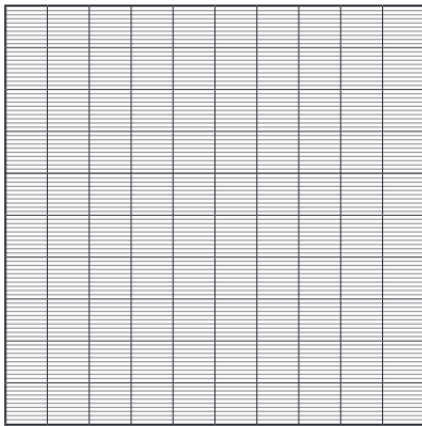
a. 0 ones 2 tenths 2 hundredths 5 thousandths



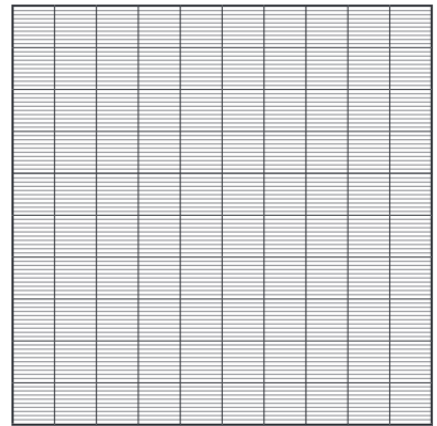
b. 0 ones 5 tenths 5 hundredths 3 thousandths



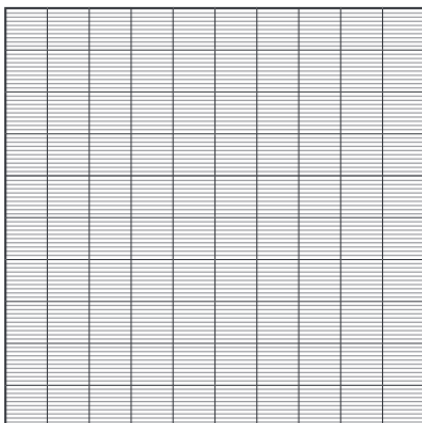
c. 0 ones 3 tenths 4 hundredths 4 thousandths



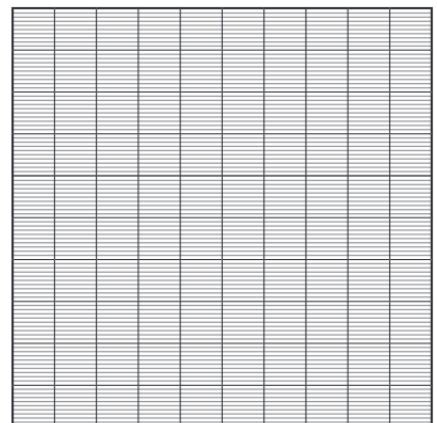
d. 0 ones 7 tenths 2 hundredths 2 thousandths



e. 0 ones 3 tenths 8 hundredths 2 thousandths



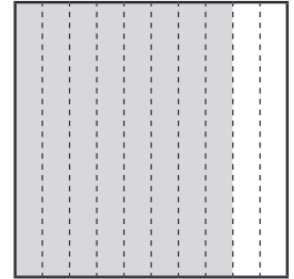
f. 0 ones 8 tenths 6 hundredths 7 thousandths



Decimal fractions: Reading and writing thousandths (without zeros and teens)

Each large square is one whole.

What fraction has been shaded?
How do you know?



Write the mixed number that matches the shaded amount. Then write the equivalent decimal fraction on the expander.

ones

tenths

Imagine you drew more lines to divide the tenths into hundredths.

Write the mixed number that matches the amount that would be shaded. Then write the equivalent decimal fraction on the expander.

ones

hundredths

Imagine you drew more lines to divide the hundredths into thousandths.

Write a mixed number to show the fraction that would be shaded. Then write the equivalent decimal fraction on the expander.

ones

thousandths

Look at this place-value chart.

Thousands	Hundreds	Tens	Ones	tenths	hundredths	thousandths

What do you notice about the places on either side of the ones place?

Draw one and eight hundred thousandths on the chart.



Decimal fractions: Reading and writing thousandths (without zeros and teens)

1. Write the matching number on the expander. Then write the numeral to match.

five and four hundred
twenty thousandths



2. Complete the missing parts.

a.

$$7 \frac{629}{1000}$$



seven and six hundred
twenty-nine thousandths

b.

3.852



c.



e.



d.

8.466



f.

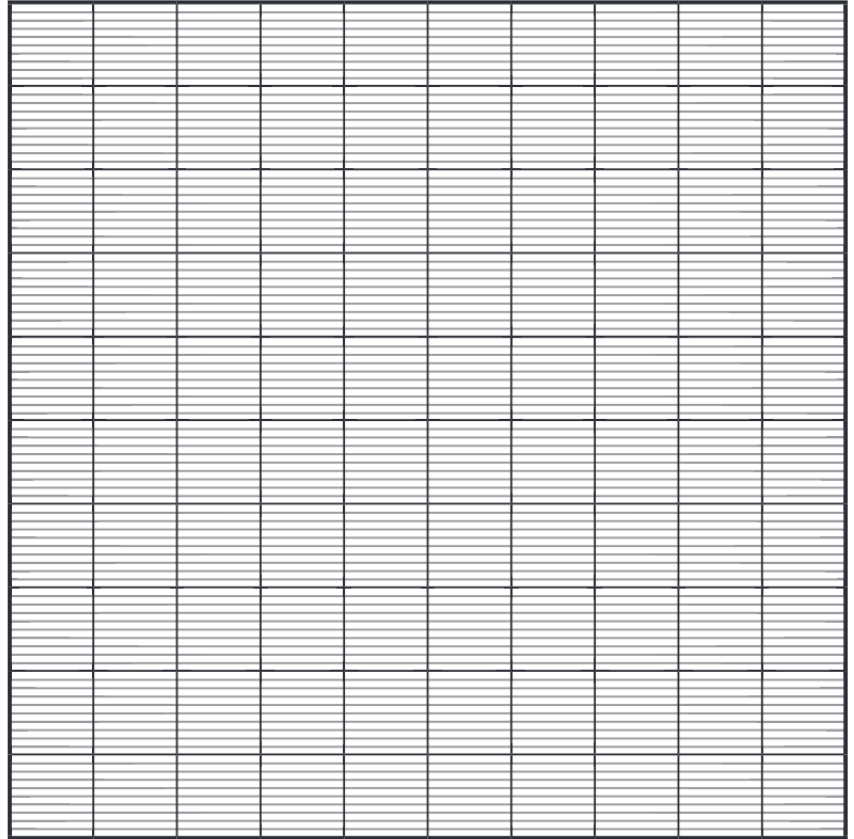
5.478



Decimal fractions: Reading and writing thousandths (with zeros and teens)

This large square is one whole.

Color parts of the square in red to match the decimal fraction on this expander.



Read the number aloud.



Four hundred five thousandths.

Write the common fraction to match 0.405.

Color more parts in blue to show a total of 0.418.

Write the common fraction to match.

0.418

is equivalent to



This activity focuses on how to read, write, and represent decimal fractions involving thousandths.

Decimal fractions: Reading and writing thousandths (with zeros and teens)

1. Write the matching decimal fraction with and then without the expander.

a.	three and one hundred forty thousandths	<div> <div></div> <div>ones</div> <div></div> <div></div> <div></div> <div>thousandths</div> </div>	<input type="text"/> <input type="text"/>
b.	two and two hundred thirteen thousandths	<div> <div></div> <div>ones</div> <div></div> <div></div> <div></div> <div>thousandths</div> </div>	<input type="text"/> <input type="text"/>

2. Complete the missing parts.

a.	<input type="text"/> <div> <div>6</div> <div>ones</div> <div>4</div> <div>0</div> <div>9</div> <div>thousandths</div> </div>	<div> $6 \frac{409}{1000}$ </div>
b.	<input type="text"/> <div> <div></div> <div>ones</div> <div></div> <div></div> <div></div> <div>thousandths</div> </div>	<div> <div>three and five hundred</div> <div>twelve thousandths</div> </div>
c.	<div> 6.308 </div> <div> <div></div> <div>ones</div> <div></div> <div></div> <div></div> <div>thousandths</div> </div>	<input type="text"/> <input type="text"/> <input type="text"/>
d.	<div> 2.095 </div> <div> <div></div> <div>ones</div> <div></div> <div></div> <div></div> <div>thousandths</div> </div>	<input type="text"/> <input type="text"/> <input type="text"/>

3. Write each decimal fraction in words.

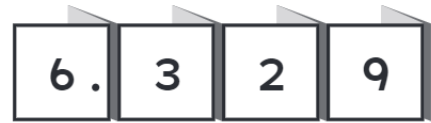
a.	4.045	<input type="text"/> <input type="text"/>
b.	5.104	<input type="text"/> <input type="text"/>



Decimal fractions: Recording in expanded form

Read aloud the decimal fraction on this closed expander.

Write the mixed number to match.



Two students wrote the mixed number in different ways.

Method A

$$(6 \times 1) + (3 \times 0.1) + (2 \times 0.01) + (9 \times 0.001)$$

Method B

$$(6 \times 1) + (3 \times \frac{1}{10}) + (2 \times \frac{1}{100}) + (9 \times \frac{1}{1000})$$

Check that each method gives the same sum.

Kyle knew another way to write the decimal fractions in expanded form.

He wrote the decimal fraction like this.

Method C

$$(3 \times 0.1) + (2 \times 0.01) + (6 \times 1) + (9 \times 0.001)$$

Check that his method gives the same sum as the other two methods.

Does it matter what order the place values are expanded? Explain.

Write the missing numbers.

a.	7.342	$(\boxed{} \times 1) + (\boxed{} \times 0.1) + (\boxed{} \times 0.01) + (\boxed{} \times 0.001)$
b.	4.603	$(\boxed{} \times 1) + (\boxed{} \times 0.1) + (\boxed{} \times 0.001)$
c.	6.029	$(\boxed{} \times 1) + (\boxed{} \times 0.01) + (\boxed{} \times 0.001)$



This activity reinforces how to write a fraction involving thousandths as the sum of its parts. Each fraction is broken into place-value parts and written using decimal fractions or common fractions.

Decimal fractions: Recording in expanded form

1. Write each decimal fraction in expanded form using either the decimal fraction or common fraction methods.

a. 5.936	
b. 3.802	
c. 8.001	
d. 1.370	
e. 0.547	

2. Write the decimal fraction that has been expanded.

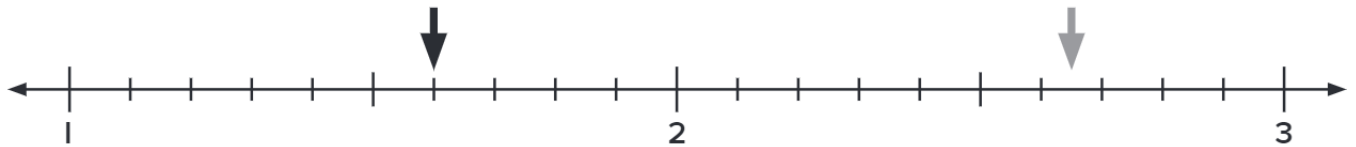
a. $(2 \times 1) + (4 \times 0.1) + (7 \times 0.001)$ _____	b. $(7 \times 0.1) + (3 \times 0.01) + (2 \times 0.001)$ _____
c. $(5 \times 1) + (4 \times \frac{1}{100}) + (8 \times \frac{1}{1000})$ _____	d. $(8 \times 1) + (8 \times \frac{1}{10}) + (3 \times \frac{1}{1000})$ _____
e. $(4 \times 1) + (3 \times 0.1) + (9 \times 0.001)$ _____	f. $(3 \times 1) + (4 \times \frac{1}{1000})$ _____



This activity reinforces how to write a fraction involving thousandths as the sum of its parts. Each fraction is broken into place-value parts and written using decimal fractions or common fractions.

Decimal fractions: Locating thousandths on a number line

On each number line, the distance between each whole number is one whole.



Write the decimal fraction that describes the position marked by the black arrow.

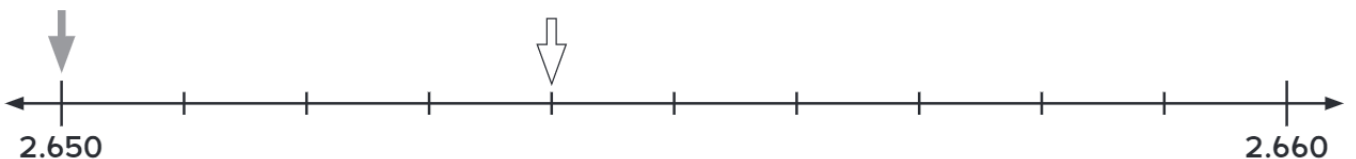
How could you figure out the decimal fraction that the gray arrow is indicating?

This section of the same number line has been split into hundredths.



Write the decimal fraction that describes the position of the gray arrow above.

This section of the same number line has been split into thousandths.



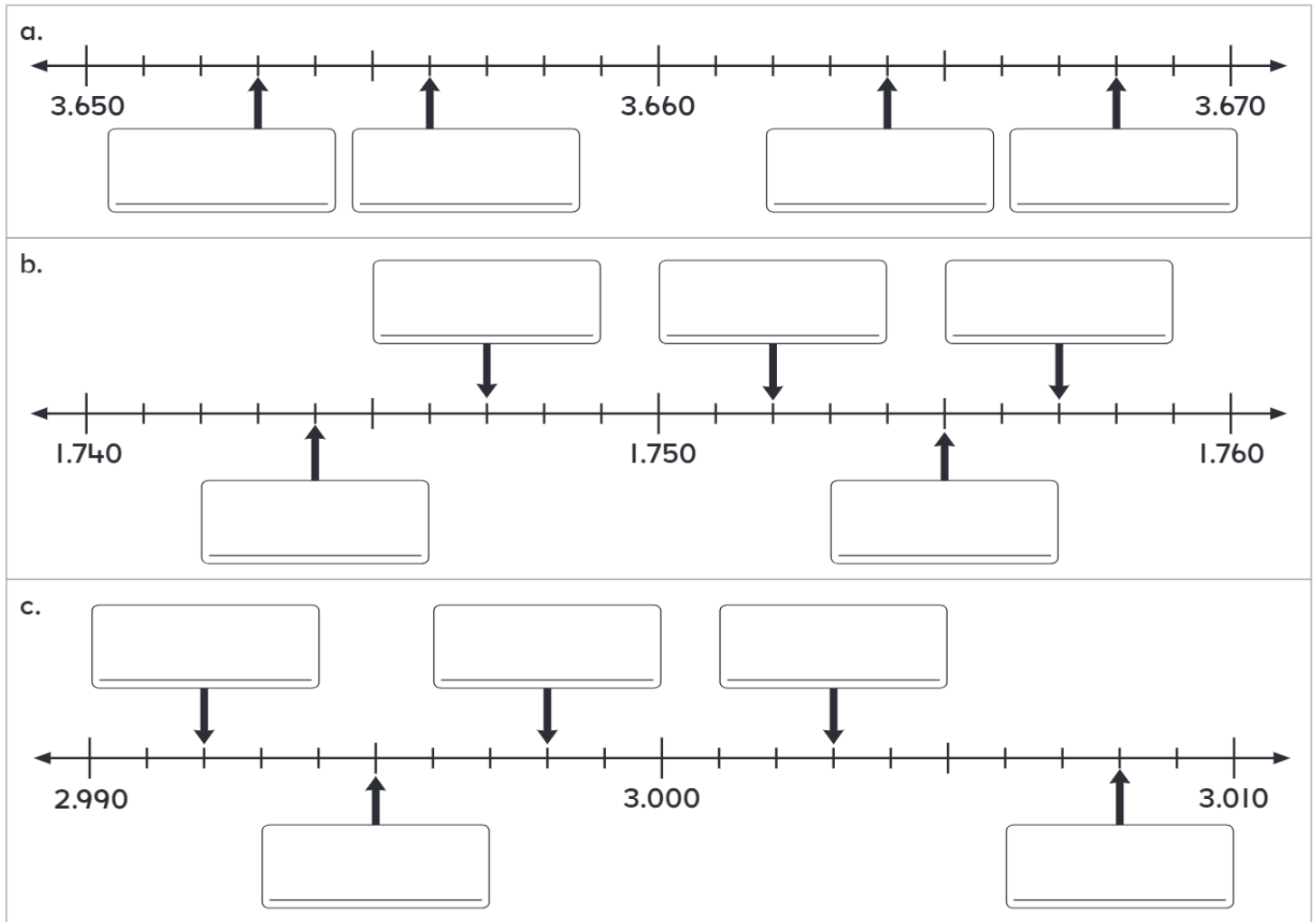
Write the decimal fraction that describes the position of the white arrow.

Mark the number 2.657 on the number line directly above.

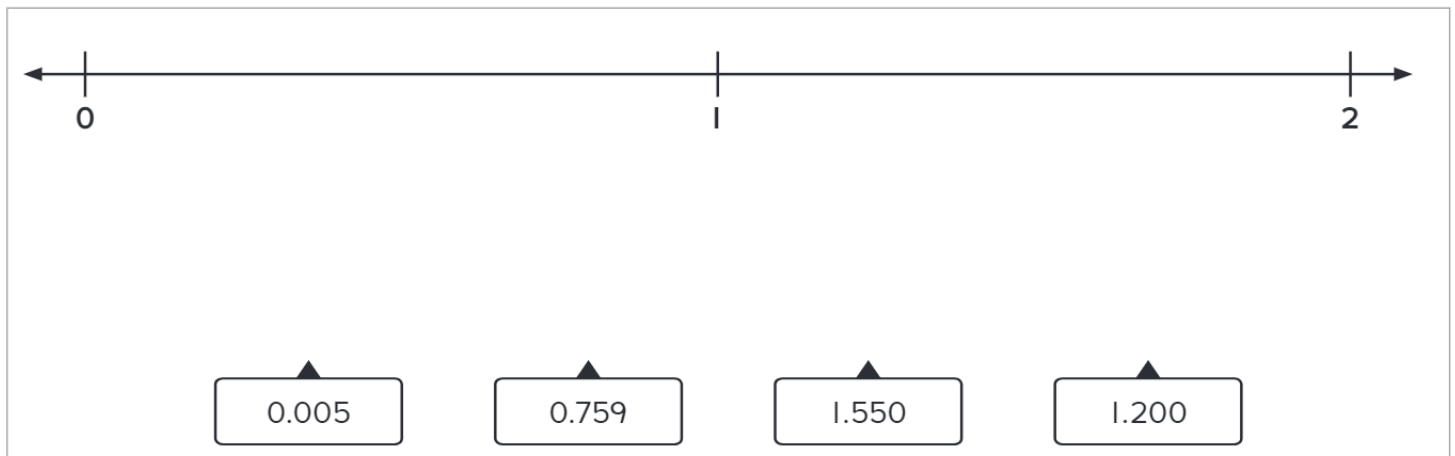


Decimal fractions: Locating thousandths on a number line

1. Write the decimal fraction that is shown by each arrow.



2. Draw an arrow to connect each decimal fraction to its approximate position on the number line. Be as accurate as possible.



Locating decimal fractions on a number line is an essential foundation for later work with comparing and ordering these numbers. It also builds understanding of the relative “size” of decimal fractions.

Decimal fractions: Comparing and ordering thousandths

Read these decimal fractions aloud.

0.409

0.650

How could you compare the decimal fractions to determine which is greater?

Estimate and label the position of each decimal fraction on this number line.



Circle the greater decimal fraction in red.

Estimate and label the positions of these two decimal fractions on the number line above.

0.597

0.652

Write how you decide which decimal fraction is greater.

Draw an arrow to show the approximate position of each number on the number line.

0.54

0.467

0.892

0.705



Decimal fractions: Comparing and ordering thousandths

1. In each group, circle the **greatest** decimal fraction.

<p>a.</p> <div>0.500</div> <div>0.360</div> <div>0.935</div>	<p>b.</p> <div>0.030</div> <div>0.003</div> <div>0.300</div>
<p>c.</p> <div>0.075</div> <div>0.705</div> <div>0.750</div>	<p>d.</p> <div>0.653</div> <div>0.563</div> <div>0.356</div>

2. Write $<$ or $>$ to make each statement true.

<p>a.</p> <div>0.908</div> <div>○</div> <div>0.809</div>	<p>b.</p> <div>0.412</div> <div>○</div> <div>0.421</div>	<p>c.</p> <div>0.078</div> <div>○</div> <div>0.087</div>
<p>d.</p> <div>0.691</div> <div>○</div> <div>0.619</div>	<p>e.</p> <div>0.012</div> <div>○</div> <div>0.120</div>	<p>f.</p> <div>0.525</div> <div>○</div> <div>0.522</div>

3. Write each set of fractions in order from **least** to **greatest**. Use the number line to help you.

<p>a.</p> <div>0.635</div> <div>0.725</div> <div>0.670</div> <div>0.140</div>
<p>b.</p> <div>0.039</div> <div>0.566</div> <div>0.320</div> <div>0.401</div>



In this activity, decimal fractions involving thousandths are compared and ordered. A number line is initially used to make the comparison more visible.

Decimal fractions: Comparing and ordering with unequal places

Estimate and label the position of this decimal fraction on the number line.

0.74



How did you determine the position? What part of the decimal fraction did you look at first?

Is this decimal fraction greater than or less than 0.74? How do you know?
Estimate and label the position of this decimal fraction on the number line.

0.749

Is this decimal fraction greater than or less than 0.74? How do you know?
Estimate and label the position of this decimal fraction on the number line.

0.709

Write these decimal fractions in order from **least** to **greatest**.

0.07

0.71

0.071

0.017

Circle the greatest decimal fraction in each group.

a.

0.6

0.649

0.46

b.

0.18

0.018

0.081

Compare these decimal fractions. Write $<$ or $>$ to make each statement true.

a.

0.176 0.16

b.

0.21 0.201

c.

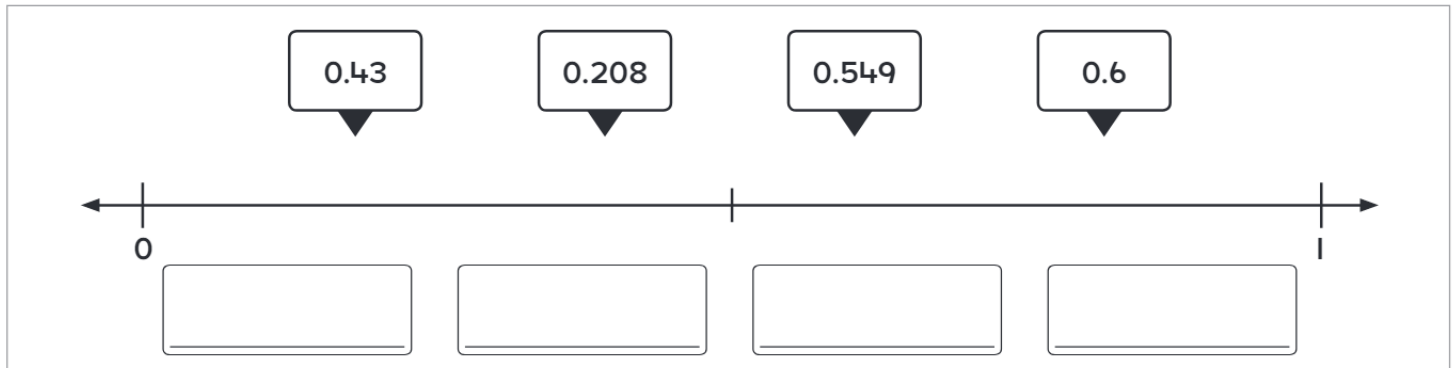
0.5 0.499



This activity reinforces comparing and ordering decimal fractions with a varying number of places (e.g. 0.3, 0.72, 0.708). A number line is initially used to make the comparison more visible.

Decimal fractions: Comparing and ordering with unequal places

1. Draw an arrow to show the approximate position of each decimal fraction on the number line. Then write them in order from **least** to **greatest**.



2. Write $<$, $>$, or $=$ to make each statement true.

a. 0.3 ○ 0.03	b. 0.69 ○ 0.690	c. 0.033 ○ 0.05
--------------------	----------------------	----------------------

3. Write each group of decimal fractions in order from **least** to **greatest**.

a.	0.25	0.205	0.025	1.28
	_____	_____	_____	_____
b.	0.614	0.073	0.68	0.061
	_____	_____	_____	_____
c.	0.053	0.303	0.405	0.003
	_____	_____	_____	_____

4. Write these in order from **greatest** to **least**.

0.6	0.075	0.76	0.67	0.535	0.553
_____	_____	_____	_____	_____	_____



This activity reinforces comparing and ordering decimal fractions with a varying number of places (e.g. 0.3, 0.72, 0.708). A number line is initially used to make the comparison more visible.

Decimal fractions: Rounding thousandths

The number line below shows thousandths.

Label the position of this decimal fraction on the number line.

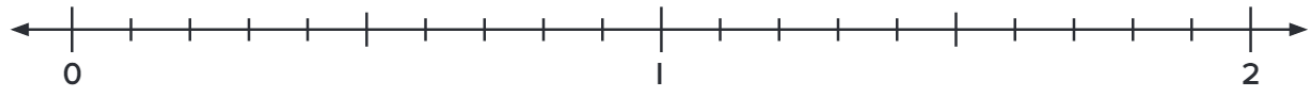
1.786



Circle the hundredth that is nearest. How did you decide?

On this number line, the distance between each whole number is one whole.

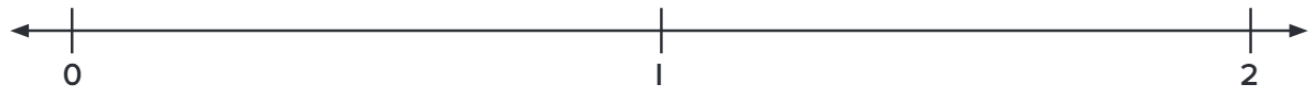
Label the position of the same decimal fraction on this number line.



Circle the nearest tenth. How did you figure it out?

On this number line, the distance between each whole number is also one whole.

Label the position of the same decimal fraction on this number line.



Circle the nearest whole number.

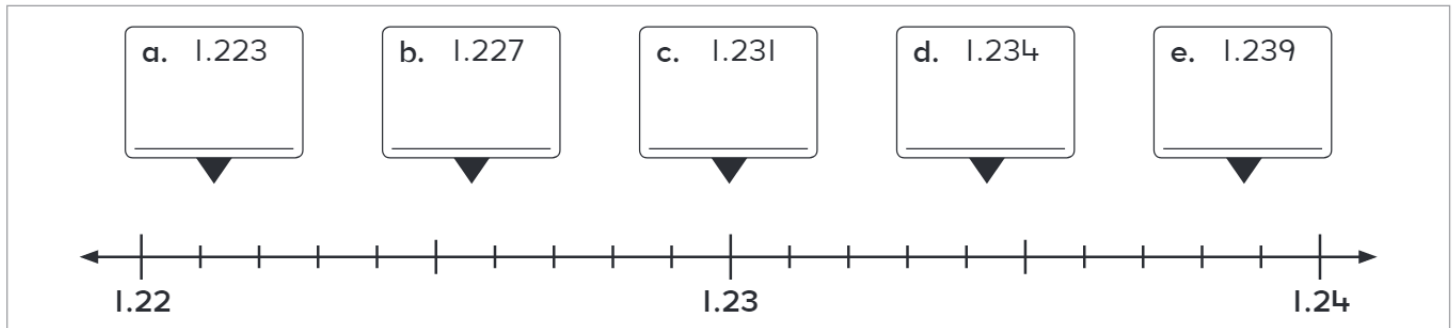
Round **1.609** to the nearest whole number, tenth, and hundredth.

Nearest whole number	Nearest tenth	Nearest hundredth

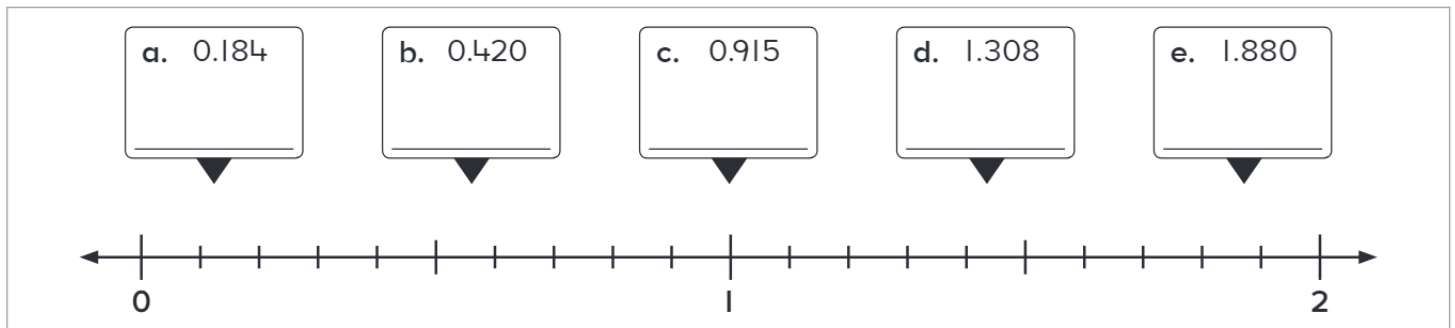


Decimal fractions: Rounding thousandths

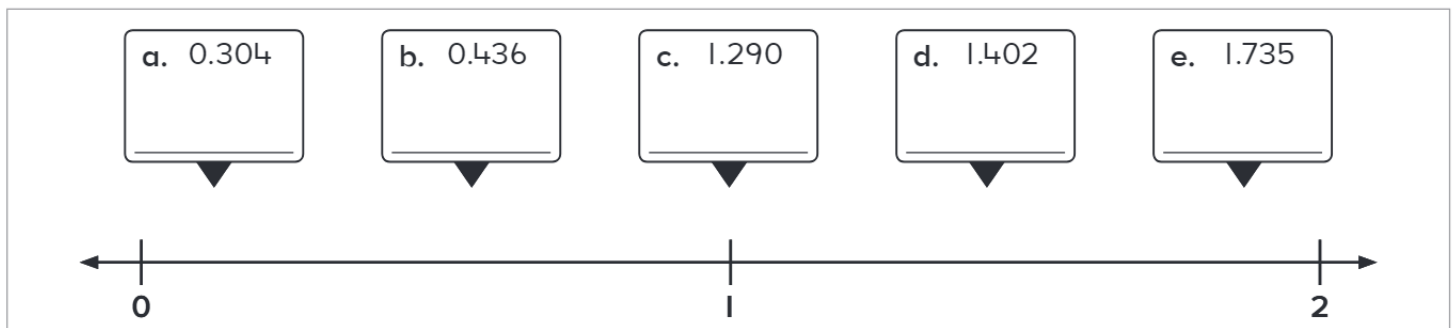
1. Draw an arrow to show the exact position of each number on the number line. Then write the nearest **hundredth**.



2. Draw an arrow to show the approximate position of each number on the number line. Then write the nearest **tenth**.



3. Draw an arrow to show the approximate position of each number on the number line. Then write the nearest **whole number**.



4. Read the number on the expander. Then round the number to the nearest whole number, tenth, and hundredth.



Nearest whole number	Nearest tenth	Nearest hundredth



This activity focuses on rounding decimal fractions with three decimal places (thousandths) to the nearest whole number, tenth, or hundredth. Number lines are used to make the rounding more visible.

Decimal fractions: Rounding with unequal decimal places

Brianna's hand span measures 7.236 inches and Jose's hand span measures 7.362 inches.

What digits would you look at to help you round each length to the nearest tenth of an inch?

Carol follows these steps to round the length of Jose's hand span to the nearest tenth of an inch.



7.362

First she finds the place to which she is rounding.



7.362

Then she looks at the next lowest place value.



7.362

If the digit in that place is 5 or greater then the number is rounded up.

Write the length that Jose's hand span after rounding. inches

Write the length that Brianna's hand span after rounding. inches

Write how you would round each hand span to the nearest hundredth of an inch.

Round each decimal fraction to the nearest whole number.

a. 3.764 <input type="text"/>	b. 2.43 <input type="text"/>	c. 8.346 <input type="text"/>
d. 5.8 <input type="text"/>	e. 4.06 <input type="text"/>	f. 9.155 <input type="text"/>
g. 1.509 <input type="text"/>	h. 7.7 <input type="text"/>	i. 6.08 <input type="text"/>



This activity reviews rounding a decimal fraction with up to three decimal places to the nearest whole number, tenth, and hundredth.

Decimal fractions: Rounding with unequal decimal places

1. Round each fraction to the nearest **tenth**.

a. 6.24	<input type="text"/>	b. 7.067	<input type="text"/>	c. 2.53	<input type="text"/>
d. 0.507	<input type="text"/>	e. 1.85	<input type="text"/>	f. 3.543	<input type="text"/>
g. 9.058	<input type="text"/>	h. 0.905	<input type="text"/>	i. 8.591	<input type="text"/>

2. Round each fraction to the nearest **hundredth**.

a. 3.623	<input type="text"/>	b. 5.476	<input type="text"/>	c. 4.061	<input type="text"/>
d. 0.725	<input type="text"/>	e. 6.386	<input type="text"/>	f. 1.006	<input type="text"/>
g. 2.734	<input type="text"/>	h. 0.967	<input type="text"/>	i. 7.083	<input type="text"/>

3. Read the number on the expander. Then round each number to the nearest whole number, tenth, and hundredth.

a.	<div>2.</div> <div>6</div> <div>6</div> <div>3</div>
b.	<div>6.</div> <div>1</div> <div>3</div> <div>7</div>
c.	<div>3.</div> <div>0</div> <div>8</div> <div>5</div>
d.	<div>0.</div> <div>7</div> <div>5</div> <div>8</div>

Nearest whole number	Nearest tenth	Nearest hundredth
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>



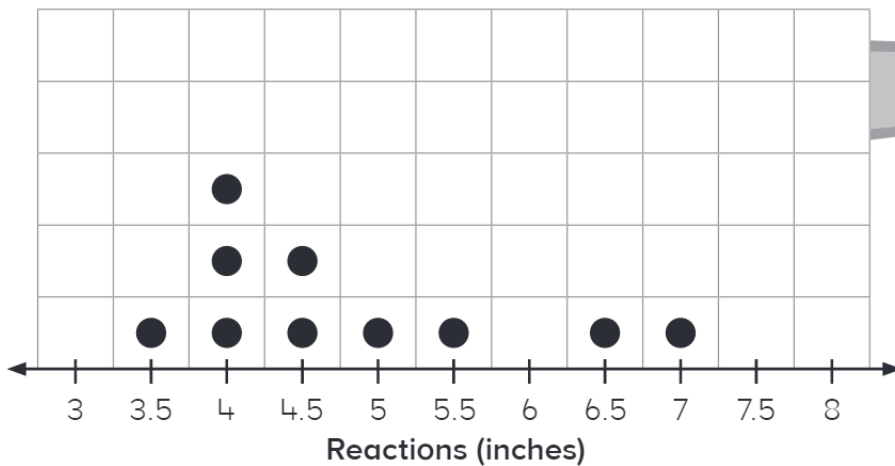
Discuss

Decimal fractions: Interpreting results on a line plot

Two students complete an experiment with a foot-long ruler. Their results are in the table below.

Trial	Result (in)	Trial	Result (in)
1	6.5	6	7
2	4	7	4.5
3	3.5	8	5.5
4	4.5	9	4
5	4	10	5

The line plot below shows data to match the table of results.



Answer the questions about the data in the line plot and table of results.

What was the best (shortest) result?

Which result was recorded most frequently?

What was the longest result?

How much greater was the longest result than the shortest?

How many times was the experiment conducted?



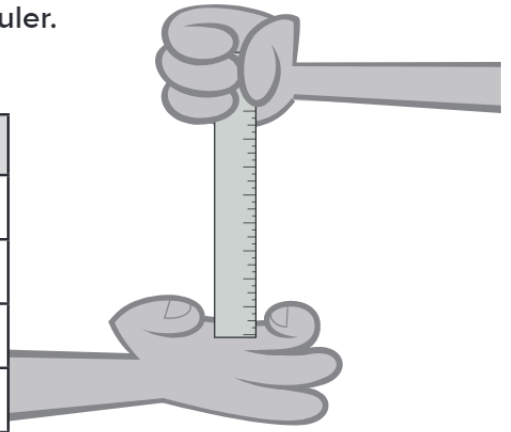
This activity reviews how data can be used to construct a line plot and provides practice in interpreting the line plot information through a series of questions.

Decimal fractions: Interpreting results on a line plot

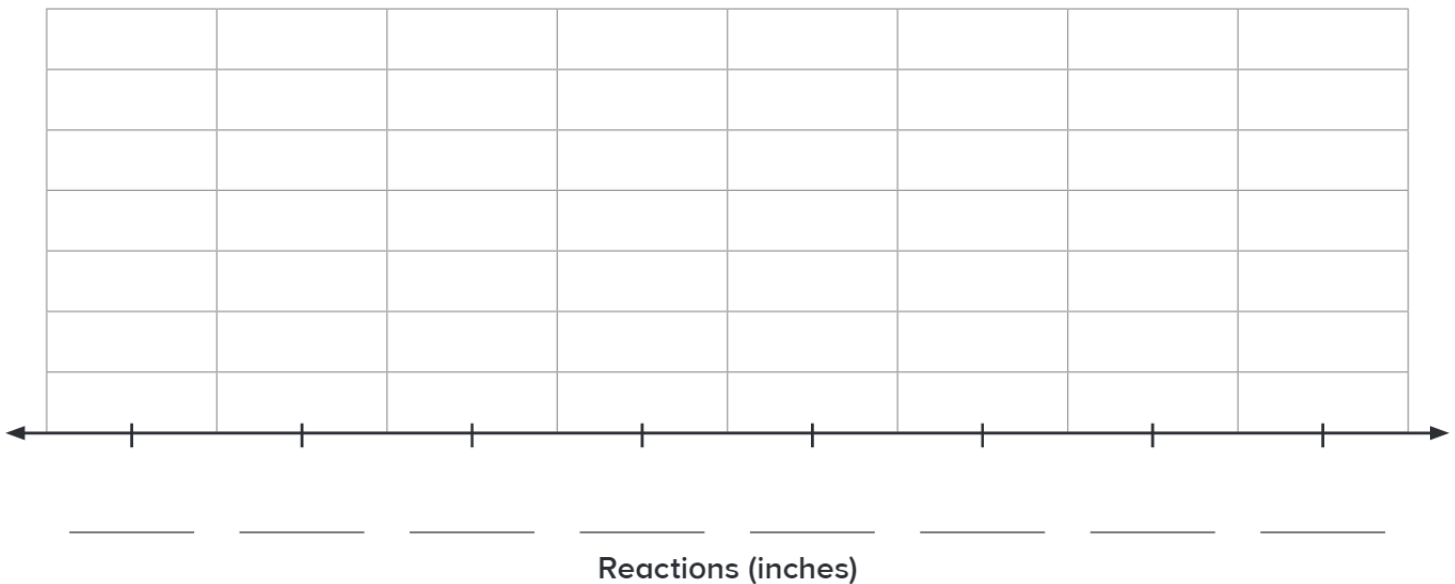
A group of 25 students complete an experiment with a foot-long ruler. They record the number of times each result occurs.

Result (in)	Frequency
3	0
3.5	2
4	3
4.5	5

Result (in)	Frequency
5	6
5.5	4
6	4
6.5	1



- I. Complete the line plot below to show the data from the table.



2. a. Which result was recorded most frequently?

Least frequently

- b.** What was the shortest result?

- c.** What was the longest result?

- d. How much greater was the longest result than the shortest result?

