

# TABLE OF CONTENTS

<b>About Finish Line New York Math</b>	<b>5</b>
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<b>UNIT 1: Big Ideas from Grade 3</b>	<b>7</b>
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LESSON 1	3.NBT.2	<b>Adding and Subtracting</b> [connects to 4.NBT.4]	<b>8</b>
LESSON 2	3.OA.7	<b>Multiplying and Dividing</b> [connects to 4.NBT.5, 6; 4.OA.1, 2]	<b>15</b>
LESSON 3	3.NF.1; 2.a, b; 3.a–d	<b>Understanding Fractions</b> [connects to 4.NF.1, 2, 3]	<b>21</b>
LESSON 4	3.MD.5.a, b; 6	<b>Understanding Area</b> [connects to 4.MD.3]	<b>29</b>
<b>UNIT 1 REVIEW</b>			<b>35</b>

<b>UNIT 2: Operations and Algebraic Thinking</b>	<b>40</b>
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LESSON 5	4.OA.1	<b>Understanding Multiplication as Comparison</b>	<b>41</b>
LESSON 6	4.OA.2	<b>Multiplication and Division Word Problems</b>	<b>47</b>
LESSON 7	4.OA.3	<b>Representing Multistep Word Problems</b>	<b>53</b>
LESSON 8	4.OA.3	<b>Solving Multistep Word Problems</b>	<b>59</b>
LESSON 9	4.OA.4	<b>Factors and Multiples</b>	<b>66</b>
LESSON 10	4.OA.4	<b>Prime and Composite Numbers</b>	<b>72</b>
LESSON 11	4.OA.5	<b>Number Patterns</b>	<b>79</b>
LESSON 12	4.OA.5	<b>Shape Patterns</b>	<b>85</b>
<b>UNIT 2 REVIEW</b>			<b>91</b>

<b>UNIT 3: Number and Operations in Base Ten</b>	<b>96</b>
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LESSON 13	4.NBT.1	<b>Whole-Number Place Value</b>	<b>97</b>
LESSON 14	4.NBT.2	<b>Reading and Writing Whole Numbers</b>	<b>104</b>
LESSON 15	4.NBT.2	<b>Comparing Whole Numbers</b>	<b>111</b>
LESSON 16	4.NBT.3	<b>Rounding Whole Numbers</b>	<b>117</b>
LESSON 17	4.NBT.4	<b>Adding and Subtracting Whole Numbers</b>	<b>123</b>
LESSON 18	4.NBT.5	<b>Multiplying Whole Numbers</b>	<b>129</b>
LESSON 19	4.NBT.6	<b>Dividing Whole Numbers</b>	<b>135</b>
<b>UNIT 3 REVIEW</b>			<b>141</b>

<b>UNIT 4: Number and Operations—Fractions</b>			<b>146</b>
LESSON 20	4.NF.1	<b>Equivalent Fractions</b>	<b>147</b>
LESSON 21	4.NF.2	<b>Comparing Fractions</b>	<b>154</b>
LESSON 22	4.NF.3.a, b	<b>Adding and Subtracting Fractions</b>	<b>161</b>
LESSON 23	4.NF.3.c	<b>Adding and Subtracting Mixed Numbers</b>	<b>167</b>
LESSON 24	4.NF.3.d	<b>Word Problems with Addition and Subtraction of Fractions</b>	<b>173</b>
LESSON 25	4.NF.4.a, b	<b>Multiplying Fractions and Whole Numbers</b>	<b>180</b>
LESSON 26	4.NF.4.c	<b>Word Problems with Multiplication of Fractions and Whole Numbers</b>	<b>187</b>
LESSON 27	4.NF.5	<b>Decimals and Fractions</b>	<b>194</b>
LESSON 28	4.NF.6	<b>Decimal Notation</b>	<b>200</b>
LESSON 29	4.NF.7	<b>Comparing Decimals</b>	<b>206</b>
<b>UNIT 4 REVIEW</b>			<b>213</b>
<b>UNIT 5: Measurement and Data</b>			<b>217</b>
LESSON 30	4.MD.1	<b>Converting Customary Units of Measurement</b>	<b>218</b>
LESSON 31	4.MD.1	<b>Converting Metric Units of Measurement</b>	<b>225</b>
LESSON 32	4.MD.2	<b>Word Problems with Measurements</b>	<b>231</b>
LESSON 33	4.MD.3	<b>Area of Rectangles</b>	<b>238</b>
LESSON 34	4.MD.3	<b>Perimeter of Rectangles</b>	<b>246</b>
LESSON 35	4.MD.4	<b>Measurement Data on Line Plots</b>	<b>253</b>
LESSON 36	4.MD.5.a, b; 4.G.1	<b>Understanding Angles</b>	<b>260</b>
LESSON 37	4.MD.6	<b>Measuring and Drawing Angles</b>	<b>267</b>
LESSON 38	4.MD.7	<b>Solving Angle Problems</b>	<b>275</b>
<b>UNIT 5 REVIEW</b>			<b>281</b>
<b>UNIT 6: Geometry</b>			<b>286</b>
LESSON 39	4.G.1	<b>Points, Lines, Line Segments, and Rays</b>	<b>287</b>
LESSON 40	4.G.1	<b>Parallel and Perpendicular Lines</b>	<b>294</b>
LESSON 41	4.G.2	<b>Classifying Shapes</b>	<b>300</b>
LESSON 42	4.G.3	<b>Lines of Symmetry</b>	<b>306</b>
<b>UNIT 6 REVIEW</b>			<b>312</b>
<b>Glossary</b>			<b>316</b>
<b>Flash Cards</b>			<b>321</b>



## Introduction

Numbers in standard form show place values. Whole numbers are written in the places to the left of the decimal point. The places to the right of the decimal point are tenths and hundredths. Writing a number with digits to the right of the decimal point is called **decimal notation**. So, you can write  $\frac{1}{10}$  as 0.1 and  $\frac{1}{100}$  as 0.01. The 0 to the left of the decimal point shows that there are no ones.

A number in standard form is written with digits.

2,305

$$\frac{1}{10} + \frac{1}{100} = 0.1 + 0.01 = 0.11$$

Ones	Decimal point	Tenths	Hundredths
0	.	1	1

Each place has a value 10 times the value of the place to its right.

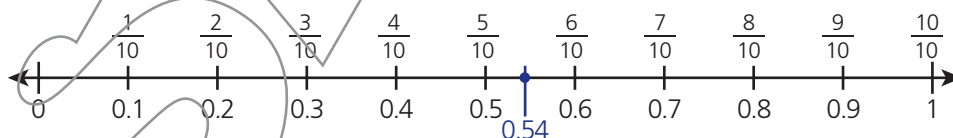
Write  $\frac{54}{100}$  using decimal notation.

First, write the fraction in expanded form as  $\frac{54}{100} = \frac{5}{10} + \frac{4}{100}$ . So, there is a 5 in the tenths place and a 4 in the hundredths place. Fill in a table.

Ones	Decimal point	Tenths	Hundredths
0	.	5	4

The fraction  $\frac{54}{100}$  is equal to the decimal 0.54.

You can locate a decimal on a number line. The decimal 0.54 falls between 0.5 and 0.6, a little closer to 0.54.



## Think About It

Where might you see decimal notation in everyday life? Give two examples.

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### Focused Instruction

**Think about place value to represent fractions as decimals or decimals as fractions.**

- What is  $\frac{9}{10}$  as a decimal?

What is the denominator of the fraction? \_\_\_\_\_

What is the name of the decimal place that represents fractions with this denominator? \_\_\_\_\_

How many places to the right of the decimal point do you write the numerator of this fraction? \_\_\_\_\_

Write the decimal that is equal to  $\frac{9}{10}$ . \_\_\_\_\_

Denominators of  
10 and 100 name  
place values.

- What is 0.73 as a fraction?

What decimal place is the 7 in? \_\_\_\_\_

What fraction does this represent? \_\_\_\_\_

What decimal place is the 3 in? \_\_\_\_\_

What fraction does this represent? \_\_\_\_\_

Write an expression to add the fractions. \_\_\_\_\_

Place values on the  
right of the decimal  
point are first tenths  
and then hundredths.

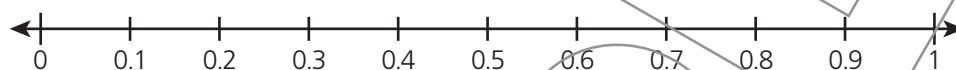
Rewrite the expression using fractions with a common denominator of 100.

\_\_\_\_\_

Add the fractions to write 0.73 as a fraction. \_\_\_\_\_

**You can identify decimals on a number line.**

- Change the fraction  $\frac{88}{100}$  to a decimal and locate it on the number line.



What is  $\frac{88}{100}$  as a decimal? \_\_\_\_\_

How many tenths does the decimal have? \_\_\_\_\_

Find this number of tenths on the number line. How many hundredths are between 0.8 and 0.9? \_\_\_\_\_

How many hundredths does the decimal have? \_\_\_\_\_

Do the hundredths make the decimal closer to 0.8 or 0.9? \_\_\_\_\_

Mark the position of 0.88 on the number line and label it.

1 tenth is equal  
to 10 hundredths.

**Use what you know about decimal notation to answer these questions.**

- 1** Write  $\frac{9}{100}$  in decimal notation.

\_\_\_\_\_

- 2** What fraction does the decimal 0.37 equal?

\_\_\_\_\_

**Solve the following problems.**

- 1** What is the decimal notation for the fraction  $\frac{3}{10}$ ?

**Answer** \_\_\_\_\_

The denominator 10 shows that the numerator 3 belongs in the tenths place.

- 2** A length of ribbon is 0.78 meter long. What fraction describes the length of the ribbon?

**Answer** \_\_\_\_\_

- 3** What is the sum of  $\frac{6}{10}$  and  $\frac{5}{100}$  written as a decimal? Show your work.

**Answer** \_\_\_\_\_

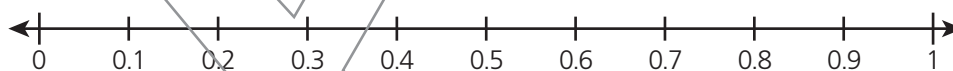
Change  $\frac{6}{10}$  to an equivalent fraction in hundredths. Then add the fractions and change the sum to a decimal.

- 4** Gareth wants to place the fraction  $\frac{12}{100}$  on the decimal number line below.

**Part A** Write the fraction  $\frac{12}{100}$  in decimal notation.

**Answer** \_\_\_\_\_

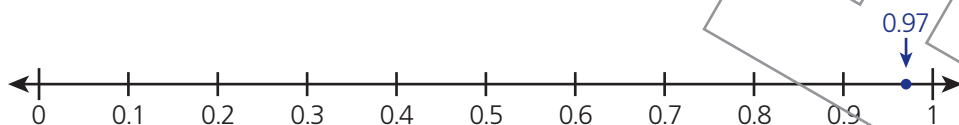
**Part B** Mark and label the location of the decimal on the number line.



Which tenths is the decimal between?

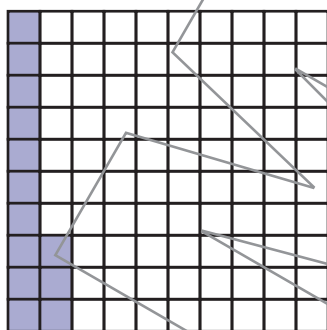
**Solve the following problems.**

- 1** Which fraction is equal to the decimal marked by an arrow on the number line?



- A**  $\frac{97}{10}$   
**B**  $\frac{97}{100}$   
**C**  $\frac{1}{97}$   
**D**  $\frac{10}{97}$

- 2** Write the fraction and the decimal this model shows.



**Fraction** \_\_\_\_\_

**Decimal** \_\_\_\_\_

- 3** Fatima wrote the fraction  $\frac{5}{100}$  as 0.5. Engin wrote the same fraction as 0.05. Who is correct? Explain.

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**4** Which list shows equivalent fractions and decimals?

**A**  $\frac{2}{1}, \frac{2}{10}, 2.0$

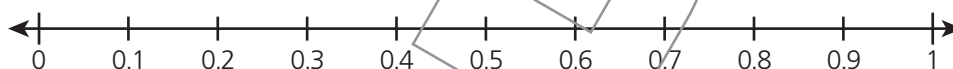
**B**  $\frac{1}{20}, \frac{10}{200}, 0.20$

**C**  $\frac{20}{10}, \frac{20}{100}, 0.2$

**D**  $\frac{2}{10}, \frac{20}{100}, 0.2$

**5** Tiera walked her dog 0.51 mile.

**Part A** Draw and label a point to show where 0.51 falls on the number line.



**Part B** Write the distance Tiera walked her dog as a fraction.

**Answer** \_\_\_\_\_ mile

**6** Mark True or False for each equation.

$\frac{9}{10} = 0.9$

**True**

**False**

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☐

$0.07 = \frac{7}{10}$

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☐

$\frac{6}{100} + \frac{4}{10} = 0.64$

☐
☐

$\frac{1}{10} + \frac{29}{100} = 0.39$

☐
☐

$\frac{2}{10} + \frac{30}{100} = 0.50$

☐
☐