

North Penn School District
Elementary Math Parent Letter

Grade 4

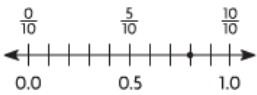
Unit 4 – Chapter 9: Relate Fractions and Decimals

Examples for each lesson:

Lesson 9.1

Relate Tenths and Decimals

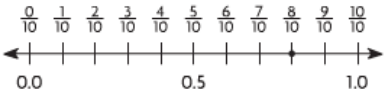
Write the fraction and the decimal that are shown by the point on the number line.



A number line from 0.0 to 1.0 with major tick marks at 0.0, 0.5, and 1.0. Above the line, there are 10 equal intervals between 0.0 and 1.0, with labels $\frac{0}{10}$, $\frac{5}{10}$, and $\frac{10}{10}$ above the 0.0, 0.5, and 1.0 marks respectively. A point is marked on the line at the 8th interval from 0.0.

Step 1 Count the number of equal parts of the whole shown on the number line. There are ten equal parts.
This tells you that the number line shows tenths.

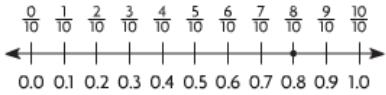
Step 2 Label the number line with the missing fractions.
What fraction is shown by the point on the number line?



A number line from 0.0 to 1.0 with major tick marks at 0.0, 0.5, and 1.0. Above the line, there are 10 equal intervals between 0.0 and 1.0, with labels $\frac{0}{10}$, $\frac{1}{10}$, $\frac{2}{10}$, $\frac{3}{10}$, $\frac{4}{10}$, $\frac{5}{10}$, $\frac{6}{10}$, $\frac{7}{10}$, $\frac{8}{10}$, $\frac{9}{10}$, and $\frac{10}{10}$ above the corresponding tick marks. A point is marked on the line at the 8th interval from 0.0.

The fraction shown by the point on the number line is $\frac{8}{10}$.

Step 3 Label the number line with the missing decimals.
What decimal is shown by the point on the number line?



A number line from 0.0 to 1.0 with major tick marks at 0.0, 0.5, and 1.0. Below the line, there are 10 equal intervals between 0.0 and 1.0, with labels 0.0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, and 1.0 below the corresponding tick marks. A point is marked on the line at the 8th interval from 0.0.

The decimal shown by the point on the number line is 0.8.

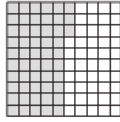
So, the fraction and decimal shown by the point on the number line are $\frac{8}{10}$ and 0.8.

More information on this strategy is available on Animated Math Model #34.

Lesson 9.2

Relate Hundredths and Decimals

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



Step 1 Count the number of shaded squares in the model and the total number of squares in the whole model.	Number of shaded squares: 53 Total number of squares: 100
Step 2 Write a fraction to represent the part of the model that is shaded.	Number of Shaded Squares = $\frac{53}{100}$ Total Number of Squares = $\frac{53}{100}$ The fraction shown by the model is $\frac{53}{100}$.
Step 3 Write the fraction in decimal form.	Think: The fraction shown by the model is $\frac{53}{100}$. 0.53 names the same amount as $\frac{53}{100}$. The decimal shown by the model is 0.53.
The fraction and decimal shown by the model are $\frac{53}{100}$ and 0.53.	

More information on this strategy is available on Animated Math Model #35.

Lesson 9.3

Equivalent Fractions and Decimals

Lori ran $\frac{20}{100}$ mile. How many tenths of a mile did she run?

Write $\frac{20}{100}$ as an equivalent fraction with a denominator of 10.

Step 1 Think: 10 is a common factor of the numerator and the denominator.

Step 2 Divide the numerator and denominator by 10.

$$\frac{20}{100} = \frac{20 \div 10}{100 \div 10} = \frac{2}{10}$$

So, Lori ran $\frac{2}{10}$ mile.

Use a place-value chart.

Step 1 Write $\frac{20}{100}$ as an equivalent decimal.

Ones	•	Tenths	Hundredths
0	•	2	0

Step 2 Think: 20 hundredths is 2 tenths 0 hundredths

Ones	•	Tenths
0	•	2

So, Lori ran 0.2 mile.

More information on this strategy is available on Animated Math Model #36.

Lesson 9.4

Relate Fractions, Decimals, and Money

Write the total money amount. Then write the amount as a fraction and as a decimal in terms of a dollar.



Step 1 Count the value of coins from greatest to least.
Write the total money amount.



Step 2 Write the total money amount as a fraction of a dollar.

The total money amount is \$0.50, which is the same as 50 cents.

Think: There are 100 cents in a dollar.

So, the total amount written as a fraction of a dollar is:

$$\frac{50 \text{ cents}}{100 \text{ cents}} = \frac{50}{100}$$

Step 3 Write the total money amount as a decimal.

Think: I can write \$0.50 as 0.50.

The total money amount is $\frac{50}{100}$ written as a fraction of a dollar, and 0.50 written as a decimal.




More information on this strategy is available on Animated Math Model # 37.

Lesson 9.5

Problem Solving • Money

Use the strategy *act it out* to solve the problem.

Jessica, Brian, and Grace earned \$7.50. They want to share the money equally. How much will each person get?

Read the Problem	Solve the Problem
<p>What do I need to find?</p> <p>I need to find the <u>amount of money each person should get</u>.</p>	<ul style="list-style-type: none"> Show the total amount, <u>\$7.50</u>, using <u>7</u> one-dollar bills and <u>2</u> quarters. 
<p>What information do I need to use?</p> <p>I need to use the total amount, <u>\$7.50</u>, and divide it by <u>3</u>, the number of people sharing the money equally.</p>	<ul style="list-style-type: none"> Share the one-dollar bills equally.  <p>There is <u>1</u> one-dollar bill left.</p>
<p>How will I use the information?</p> <p>I will use <u>dollar bills and coins</u> to model the total amount and <u>act out the problem</u>.</p>	<ul style="list-style-type: none"> Change the dollar bill that is left for <u>4</u> quarters. Now there are <u>6</u> quarters. Share the quarters equally.  <p>So, each person gets <u>2</u> one-dollar bills and <u>2</u> quarters, or <u>\$2.50</u>.</p>

Lesson 9.6

Add Fractional Parts of 10 and 100

Sam uses 100 glass beads for a project. Of the beads, $\frac{35}{100}$ are gold and $\frac{4}{10}$ are silver. What fraction of the glass beads are gold or silver?

Add $\frac{35}{100}$ and $\frac{4}{10}$.

Step 1 Decide on a common denominator. Use 100.

Step 2 Write $\frac{4}{10}$ as an equivalent fraction with a denominator of 100.

$$\frac{4}{10} = \frac{4 \times 10}{10 \times 10} = \frac{40}{100}$$

Step 3 Add $\frac{35}{100}$ and $\frac{40}{100}$.

$$\frac{35}{100} + \frac{40}{100} = \frac{75}{100}$$

← Add the numerators.

← Use 100 as the denominator.

So, $\frac{75}{100}$ of the glass beads are gold or silver.

Add \$0.26 and \$0.59.

Step 1 Write each amount as a fraction of a dollar.

$$\$0.26 = \frac{26}{100} \text{ of a dollar}$$

$$\$0.59 = \frac{59}{100} \text{ of a dollar}$$

Step 2 Add $\frac{26}{100}$ and $\frac{59}{100}$.

$$\frac{26}{100} + \frac{59}{100} = \frac{85}{100}$$

← Add the numerators.

← 100 is the common denominator.

Step 3 Write the sum as a decimal.

$$\frac{85}{100} = 0.85$$

So, $\$0.26 + \$0.59 = \underline{\$0.85}$.

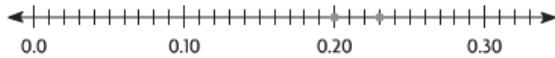
Lesson 9.7

Compare Decimals

Alfie found 0.2 of a dollar and Gemma found 0.23 of a dollar.
Which friend found more money?

To compare decimals, you can use a number line.

Step 1 Locate each decimal on a number line.



Step 2 The number farther to the right is greater.

$0.23 > 0.2$, so Gemma found more money.

To compare decimals, you can compare equal-size parts.

Step 1 Write 0.2 as a decimal in hundredths.

0.2 is 2 tenths, which is equivalent to 20 hundredths.

$$0.2 = \underline{0.20}$$

Step 2 Compare.

23 hundredths is greater than 20 hundredths,
so $0.23 > 0.2$.

So, Gemma found more money.

Vocabulary

Decimal – a number with one or more digits to the right of the decimal point

Decimal point – a symbol used to separate dollars from cents in a money amount and to separate the ones and the tenths place in a decimal

Equivalent decimals – two or more decimals that name the same amount

Hundredth – one of one hundred equal parts

Tenth – one of ten equal parts

Equivalent fractions – two or more fractions that name the same amount

Fraction – a number that names part of a whole or part of a group

Compare – to describe whether numbers are equal to, less than, or greater than each other