CHAPTER 8 Decimals and Percents

Section 8.1

TERMINOLOGY 8.1

For the following term, provide 1) a definition in your own words, 2) the formal definition (as provided by your text or instructor), and 3) an example of the term using a drawing or problem. A sample filled-out form is available in the Introduction.

Decimal Fraction

Your definition	
Formal definition	
Example	

READING AND SELF-DISCOVERY QUESTIONS 8.1

1. Please fill in the following place value chart

Place Name	Hundreds	Tens	Units	Decimal point	Tenths	Hundredths	Thousandths	Ten thousandths
Place Value	100	10	1	"and"	1/10	1/100	1/1000	1/10000

2. What are the three steps in the process to change a number in decimal form to fractional form?

   1) Write the whole number (if any); 2) Count the number of decimal places; 3) Write the decimal part (without the decimal point) over a denominator that has a 1 and the same number of zeros as the number of decimal places found in step 2.

3. What process do you use for comparing two positive decimals values (0.4 and 0.46, for example)? Be sure to answer in general terms.

   Compare the whole number parts of the numbers. If they are different, the number with the larger whole number part is the larger. If the whole number parts are the same, compare the decimal digits starting at the decimal point and moving to the right. When the first difference occurs, the number with the larger digit in that place is the larger number.

4. When rounding a decimal number, when do you increase the round-off place digit by 1?

   Identify the round-off digit. You increase the round-off digit by one when the next digit in the original number is 5 or greater. The round-off digit is unchanged if the next digit is less than 5.

CRITICAL THINKING QUESTIONS 8.1

1. Give a numerical example where rounding to the nearest hundredth would result in the digit in the hundredths place remaining the same.

   Example: 23.452

2. Give a numerical example where rounding to the nearest hundredth would result in the digit in the hundredths place increasing.

   Example: 23.457

DEMONSTRATE YOUR UNDERSTANDING 8.1

1. Fill in the table below, supplying any missing information (i.e., when one form is given, provide the other two).

Word Form	Decimal	Fraction
twenty-three hundredths	**0.23**	$\frac{23}{100}$
Six hundred three thousandths	0.603	$\frac{603}{1000}$
Eight and four hundred seventeen thousandths	8.417	$\frac{8417}{1000}$
Seventeen hundredths	**0.17**	$\frac{17}{100}$

IDENTIFY AND CORRECT THE ERRORS 8.1

In the second column, identify the error(s) you find in each of the following worked solutions. Describe the error made in the second column. Solve the problem correctly in the third column.

Problem	Describe Error	Correct Process
1. Write in decimal notation: Two hundred and twenty thousandths **Worked Solution** *(What is wrong here?)* **220,000**	**Interpreted thousandths as thousand.**	**Two hundred and twenty thousandths = 200.020**
Problem	**Describe Error**	**Correct Process**
2. Write as a fraction: 10.017 **Worked Solution** *(What is wrong here?)* $\mathbf{10\frac{17}{100}}$	**Student used hundredths instead of thousandths.**	$10\frac{17}{1000}$