

BASIC MATH

The Complete Course
Lesson Twelve

Fractions, Decimals & Percents KA8412

Teaching Guide & Worksheet

HOW TO USE THE VIDEO AND TEACHING GUIDE

1. The "STOP TO THINK" signal means pause to think.
2. The "STOP TO WORK" signal means work the problem(s).
3. Rewind the tape and watch the lesson again if the concept is not clear.
4. Use "Learning Strategies" section of the Teachers Guide as memory aids and topics for classroom discussion.
5. Students should complete the exercises on the worksheet to confirm their understanding of this lesson.

Instructors may duplicate the worksheets as needed

LEARNING STRATEGIES

CONVERTING A FRACTION TO A DECIMAL

1. Understanding equivalent decimal fractions
 1. $3/5 = 6/10$
 2. $6/10 = .6$
 3. $3/5 = .6$
2. Completing the incomplete division problem: divide the numerator by the denominator
 1. $3/5 = 3 \div 5$
 2. $3.0 \div 5 = .6$
3. Converting a decimal to a fraction
 1. Reading a decimal; refer to Lesson 9
 2. Reduce the fraction to lowest terms
4. Using a calculator to change a fraction to a decimal
5. Some examples are provided
 1. $7/8 = .875$
 2. $13/20 = .65$
 3. $8/25 = .32$
 4. $11/40 = .275$

15.	$\frac{49}{200}$	.245	24.5
14.	$\frac{1}{8}$	.125	12.5
13.	$1\frac{1}{4}$	1.444	144.4
12.	$\frac{10000}{7}$	.0007	.07
11.	$3\frac{3}{6}$	3.24	324
10.	$\frac{533}{1000}$	.533	53.3
9.	$23\frac{25}{25}$	.92	92
8.	$\frac{250}{1}$	.004	.4
7.	$\frac{16}{7}$	.4375	43.75
6.	$1\frac{1}{3}$	1.3	130
5.	$\frac{40}{1}$.025	2.5
4.	$\frac{12}{7}$.583	58.3
3.	$\frac{8}{7}$.875	87.5
2.	$\frac{12}{25}$.48	48
1.	$\frac{5}{8}$.625	62.5
	Fraction	Decimal	Percent

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TYPES OF DECIMALS

- A. Terminating decimals: denominators that divide by 10, 100, 1000, etc.
- B. Repeating decimals
 - 1. A look at denominators that do not divide by 10, 100, 1000, etc.
 - 2. Examining the value of .99999999 ...
 - 3. Examining patterns of repeating decimals such as sevenths and thirteenths
 - 4. Rounding off a repeating decimal

INTRODUCTION TO PERCENT

- A. A rationale for percent
 - 1. Some people have difficulty with fractions
 - 2. Some people have difficulty with decimals
 - 3. There was a need to write all fractions with a single common denominator—100
- B. Writing percents as fractions
 - 1. $32\% = 32/100 = 8/25$
 - 2. $50\% = 50/100 = 1/2$
- C. The meaning of 100%
 - 1. $100\% = 100/100$
 - 2. $100/100 = 1$

CHANGING A PERCENT TO A FRACTION

- A. Read the percent as a fraction—the denominator is 100
 - 1. Change 18% to a fraction
 - 2. $18\% = 18/100$
- B. Reduce the fraction to lowest terms
 - 1. 18 and 100 can be divided by 2
 - 2. $18/100 = 9/50$
 - 3. $18\% = 9/50$

CHANGING A PERCENT TO A DECIMAL

- A. Change the percent to a fraction then change the fraction to a decimal
 - 1. $18\% = 18/100 = .18$
 - 2. $50\% = 50/100 = .50 = .5$
 - 3. $6\% = 6/100 = .06$
- B. Look for a pattern
- C. To convert a percent to a decimal, move the decimal point two places to the left
- D. The method for changing a percent with a decimal fraction to a decimal
 - 1. Change 45.6% to a decimal
 - 2. Move decimal point two places to the left
 - 3. $45.6\% = .456$

CHANGING A DECIMAL TO A PERCENT

- A. This is the reverse procedure
- B. Move the decimal point two places to the right

CHANGING A FRACTION TO A PERCENT

- A. Write an equivalent fraction whose denominator is 100
- B. What if that cannot be done? Multiply the fraction by 100/1 to obtain the equivalent percent

- 1. $4/5 = ?\%$
- 2. $4/5 \times 100/1$
- 3. $4/1 \times 20/1 = 80\%$
- 4. $2/3 = ?\%$
- 5. $2/3 \times 100/1 = 200/3\%$
- 6. $2/3 = 66 \frac{2}{3}\%$
- C. An alternate method: change the fraction to a decimal and change the decimal to a percent
 - 1. $3/8 = .375$
 - 2. $.375 = 37.5\%$
 - 3. $3/8 = 37.5\%$

WORKSHEET STRATEGIES

Fill in the missing places. Use a calculator as needed. Round off decimals to the 1000ths place and the percents to the 1/10 of a %.

	Fraction	Decimal	Percent
1.	$\frac{5}{8}$		
2.		.48	
3.			87.5
4.	$\frac{7}{12}$		
5.		.025	
6.			130
7.	$\frac{7}{16}$		
8.		.004	
9.			92
10.		.533	
11.	$3\frac{6}{25}$		
12.			.07
13.	$1\frac{4}{9}$		
14.			12.5
15.		.245	