

10. \$1342.00
9. \$54.58
8. \$100.86
7. \$1186.56
6. \$209.39
5. \$59.95
15. \$209.16
4. \$1,842.75
14. 2.9%
3. 800
13. 20.3%
2. 150%
12. 34.7%
1. \$7.99
11. \$2520

# BASIC MATH

## The Complete Course Lesson Thirteen

## Percent Problems KA8413

## Teaching Guide & Worksheet

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#### 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

### THE BASIC STRUCTURE OF PERCENT PROBLEMS

- A. All percent problems can be written as "\_\_\_ % of \_\_\_ is \_\_\_"
- B. Converting words to symbols
  - 1. Of means multiply
  - 2. Is means equals

### THE TYPE I PROBLEM

- A. The "is" number is missing
  - 1. 12% of 45 is \_\_\_
  - 2. "Is" is missing
- B. Change the percent to a decimal and multiply
  - 1.  $12\% = .12$
  - 2.  $.12 \times 45 = 5.4$
- C. Check that the answer is reasonable
  - 1. 12% is close to 10% or 1/10
  - 2. 1/10 of 45 is 4.5
  - 3. 5.4 is a reasonable answer

### THE TYPE II PROBLEM

- A. The "%" is missing
  - 1. 48 is \_\_\_% of 64
  - 2. "%" is missing
- B. Multiply the fraction "is" over "of " by 100/1
  - 1.  $\text{Is/of} = 45/64$
  - 2.  $48/64 \times 100/1$
- C. Cancel, multiply, and simplify
  - 1.  $3/1 \times 25/1 = 75/1$
  - 2.  $75/1 = 75\%$

### THE TYPE III PROBLEM

- A. The "of " number is missing
  - 1. 8% of \_\_\_ is 32.4
  - 2. "Of" is missing
- B. The missing multiplier problem requires division
- C. Change the percent to a decimal and divide it into the "is" number
  - 1.  $32.4 \div .08 = 405$
  - 2. 8% of 405 is 32.4

### REAL WORLD PROBLEMS: RECOGNIZING THE TYPE OF PROBLEM

- A. Computing commission
  - 1. This is a Type I problem
  - 2. The importance of rounding off to dollars and cents
- B. Reporting the results of a survey as a percentage
  - 1. This is a Type II problem
  - 2. The answer is a percent
- C. Finding the number of questions on a test given the grade and the number of questions answered correctly
  - 1. This is a Type III problem
  - 2. The answer is a whole number
- D. Consumer questions about percents
  - 1. Find the final cost of an item purchased at a discount if you must pay sales tax
  - 2. Which offers greater savings, a 35% discount or a 25% discount followed by a 10% discount?
  - 3. What percent salary increase would be needed to balance a 20% reduction in salary?

## WORKSHEET STRATEGIES

### Solve the following:

- 1. 17.5% of \$45.67 is \_\_\_\_\_. (round to cents)
- 10. What is the total cost?

- 2. What percent of 48 is 72?

- 3. 96 is 12% of what?

- 4. A salesperson sells \$52,650 worth of product. She receives a 3.5% commission. What is her commission in dollars and cents?

- 5. An \$85 soccer ball is on sale. The discount is 35% but there is an  $8\frac{1}{2}\%$  sales tax. What must you pay to buy the ball?

An item whose regular price is \$1395.95 is on sale for 15% off. There is an 8.5% sales tax. To obtain a 3 year service contract you must pay 4.6% of the sale price. There is no sales tax on the service contract.

- 6. What is your discount?

- 7. What is the sale price?

- 8. What is the sales tax?

- 9. What is the cost of the service contract?

A survey reveals that a typical family of four spends \$875 per month on rent, \$512.50 on food, and \$73.40 on gasoline.

- 11. Monthly expenditure of \$302.40 for entertainment is 12% of the total expenditure. What is the total monthly expenditure?

- 12. What percent of the total is spent on rent?

- 13. What percent of the total is spent on food?

- 14. What percent of the total is spent on gasoline?

- 15. Utilities make up 8.3% of the total monthly expenditure. What is spent on utilities?