

- 15. 203R27
- 14. 352R16
- 13. 71R18
- 12. 28R4
- 11. 14R15
- 10. 24R6
- 9. 469
- 8. 32
- 7. 12
- 6. 103
- 5. 3551
- 4. 158R21
- 3. 20R10
- 2. 47
- 1. 18R24

# BASIC MATH

The Complete Course  
Lesson Three

## Long Division KA8403

## Teaching Guide & Worksheet

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2321 Abbot Kinney Blvd., Venice, CA 90291

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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

### EXPLAINING THE LONG-DIVISION ALGORITHM USING AN EXAMPLE— THE MAGAZINE DELIVERY PROBLEM

- A. A magazine distributor has four customers and each customer must receive the same number of magazines
- B. The truck delivers 547 magazines (five packages of 100, four packages of 10, and seven single magazines)
- C. Each package of 100 contains ten packages of 10
- D. We walk through a method that guarantees each of the four customers will get the same number of magazines—with a minimum number of magazines that cannot be distributed
  - 1. Unused packages of 100 can be converted to ten packages of 10
  - 2. Unused packages of 10 can be converted to 10 individual magazines
- E. How to check the answer
  - 1. Multiply the number of magazines in each box by the number of boxes
  - 2. Add the remaining magazines to the product
  - 3. This should equal 547

### RELATING THE LONG-DIVISION ALGORITHM TO THE EXAMPLE

- A. A step-by-step walk through the algorithm
  - 1. Divide: how many packages in each box
  - 2. Multiply: how many packages were distributed
  - 3. Subtract: how many packages are left
  - 4. Bring down: convert the remaining packages to the next place value and add to the other packages of the same value
- B. A method for checking a division problem
  - 1. Multiply the answer by the divisor
  - 2. Add the remainder to the product
  - 3. The sum should be the original number (dividend)

### USING THE LONG-DIVISION ALGORITHM

- A. Dividing with a one-digit divisor
- B. Dividing with a two-digit divisor
- C. Dividing with a zero in the quotient
  - 1. The process is the same
  - 2. Zero times the divisor is zero
- D. Using a calculator to solve a division problem
- E. Estimating the answer. Check that the answer is reasonable

### WHY YOU CANNOT DIVIDE BY ZERO

- A.  $6 \div 0 = ?$ 
  - 1. What number multiplied by zero equals six?
  - 2. Zero multiplied by any number is zero
  - 3. There is no number that yields a product of six when multiplied by zero
  - 4. The answer for  $6 \div 0$  is undefined
- B.  $0 \div 0 = ?$ 
  - 1. What number multiplied by zero equals zero?
  - 2. Zero multiplied by any number is zero
  - 3. Any number when multiplied by zero will give a product of zero
  - 4. The answer for  $0 \div 0$  is indeterminate

## WORKSHEET STRATEGIES

Work each problem by hand and check on a calculator.

- 1.  $546 \div 29 = \underline{\hspace{2cm}}$
- 2.  $1692 \div 36 = \underline{\hspace{2cm}}$
- 3.  $870 \div 43 = \underline{\hspace{2cm}}$
- 4.  $4761 \div 30 = \underline{\hspace{2cm}}$
- 5.  $\underline{\hspace{2cm}} \div 53 = 67$
- 6.  $\underline{\hspace{2cm}} \div 8 = 12R7$
- 7.  $418 \div \underline{\hspace{2cm}} = 34R10$
- 8.  $1047 \div \underline{\hspace{2cm}} = 32R23$
- 9.  $\underline{\hspace{2cm}} \div 9 = 52R1$
- 10.  $1878 \div 78 = \underline{\hspace{2cm}}$
- 11.  $603 \div 42 = \underline{\hspace{2cm}}$
- 12.  $1040 \div 37 = \underline{\hspace{2cm}}$
- 13.  $1509 \div 21 = \underline{\hspace{2cm}}$
- 14.  $6000 \div 17 = \underline{\hspace{2cm}}$
- 15.  $5711 \div 28 = \underline{\hspace{2cm}}$