

# Mastering Long Division: A Step-by-Step Guide

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## ■ Concept Explanation

Long division is a way of dividing a big number by a smaller number. It's like sharing a certain number of items into equal groups. Imagine you have 432 cookies and you want to put them into boxes that hold 12 cookies each. How many boxes can you fill? That's where long division comes in. It helps us find the answer to this kind of problem. We divide the big number (the dividend) by the smaller number (the divisor) to find out how many groups (the quotient) we can make and how many items will be left over (the remainder).

## = ■ Worked Examples

### Example 1

**Problem:** Divide 432 by 12

**Solution:**

Step 1: Divide 4 by 12. Since 12 is bigger than 4, we move to the next digit. Step 2: Divide 43 by 12.  $12 \times 3 = 36$ , so we write 3 on top and subtract 36 from 43, which gives us 7. Step 3: Bring down the next digit (2) to make 72. Divide 72 by 12.  $12 \times 6 = 72$ , so we write 6 on top and subtract 72 from 72, which gives us 0. Therefore,  $432 \div 12 = 36$ .

### Example 2

**Problem:** Divide 945 by 15

**Solution:**

Step 1: Divide 9 by 15. Since 15 is bigger than 9, we move to the next digit. Step 2: Divide 94 by 15.  $15 \times 6 = 90$ , so we write 6 on top and subtract 90 from 94, which gives us 4. Step 3: Bring down the next digit (5) to make 45. Divide 45 by 15.  $15 \times 3 = 45$ , so we write 3 on top and subtract 45 from 45, which gives us 0. Therefore,  $945 \div 15 = 63$ .

### Example 3

**Problem:** Divide 216 by 12

**Solution:**

Step 1: Divide 2 by 12. Since 12 is bigger than 2, we move to the next digit. Step 2: Divide 21 by 12.  $12 \times 1 = 12$ , so we write 1 on top and subtract 12 from 21, which gives us 9. Step 3: Bring down the next digit (6) to make 96. Divide 96 by 12.  $12 \times 8 = 96$ , so we write 8 on top and subtract 96 from 96, which gives us 0. Therefore,  $216 \div 12 = 18$ .

## ■ Practice Questions

1. Divide 540 by 9 [EASY]
  
2. Divide 864 by 12 [EASY]
  
3. Divide 945 by 15 [MEDIUM]
  
4. Divide 2160 by 12 [MEDIUM]
  
5. Divide 3750 by 25 [HARD]
  
6. Divide 6300 by 15 [HARD]

## ■ Answer Key

*For teacher/tutor reference*

**1.** 60

**2.** 72

**3.** 63

**4.** 180

**5.** 150

**6.** 420