## **Prime and Composite Numbers**

Numbers such as 2, 3, 5, 7, and 11 are prime numbers. A prime number has *only two* factors, itself and 1. A whole number that has *more than two* factors is called a composite number.

3 is an example of a prime number. Its only factors are 1 and 3.

$$\bigcirc\bigcirc\bigcirc\bigcirc\bigcirc$$
  $1 \times 3 = 3$ 

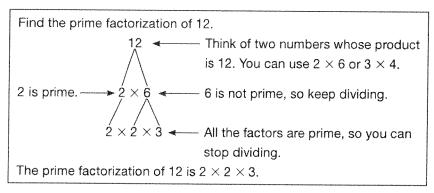
8 is a composite number. Its factors are 1, 2, 4, and 8.

$$\bigcirc\bigcirc\bigcirc\bigcirc\bigcirc\bigcirc\bigcirc\bigcirc\bigcirc\bigcirc\bigcirc\bigcirc$$
  $1 \times 8 = 8$ 

$$\begin{array}{cccc}
O & O & O & O \\
O & O & O & O
\end{array}$$

$$2 \times 4 = 8$$

To find the prime factorization of a number, you can use a factor tree.



You can also use divisibility rules to tell whether a number is prime or composite. In the example above, 12 is an even number, so it is divisible by 2. Therefore, 12 is a composite number.

Write whether each number is prime or composite.

- **1.** 17 \_\_\_\_\_
- **2.** 47

Find the prime factorization.

- **3.** 28
- **4. Number Sense** The prime factorization of a number is  $2 \times 3 \times 3$ . What is the number?

## **Prime and Composite Numbers**

Write whether each number is prime or composite.

- **1.** 21 \_\_\_\_\_\_ **2.** 36 \_\_\_\_\_ **3.** 31 \_\_\_\_\_

- **4.** 87 \_\_\_\_\_\_ **5.** 62 \_\_\_\_\_ **6.** 23 \_\_\_\_\_

Use factor trees to find the prime factorization of each number.

- **7.** 44 \_\_\_\_\_\_\_ **8.** 63 \_\_\_\_\_\_
- **9.** 13 \_\_\_\_\_\_ **10.** 54 \_\_\_\_\_
- 11. Number Sense Audrey says that the prime factorization of 42 is  $21 \times 2$ . Is she correct? If not, tell why.
- 12. Is 4,564,282 prime or composite? Explain how you determined your answer.
- 13. Which of the following is a prime number?
  - **A** 105
- **B** 27
- C 19
- **D** 9
- 14. Explain It Does it matter what two factors you select to complete a factor tree? Explain.