



Name \_\_\_\_\_

# Prime Factorization

**R** 4-2

Divisible means "having no remainder after division."

Divisibility rules help you find out if a number is divisible by 2, 3, 4, 5, 6, 9, or 10.

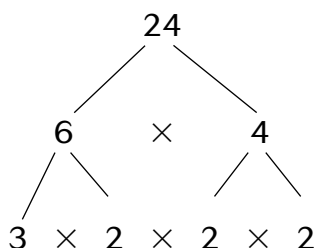
A prime number is only divisible by itself and 1. It is a whole number greater than 1 with exactly two factors, itself and 1.

$23 = \underline{23 \times 1}$  factors: 23, 1

A composite number is a whole number greater than 1 with more than two factors. For example, 24 is a composite number with eight factors.

$24 \times 1, 12 \times 2, 8 \times 3, 6 \times 4$  factors: 1, 2, 3, 4, 6, 8, 12, 24

When a number is written as the product of its prime factors, the product is called the prime factorization of the number.



The prime factorization of 24 is

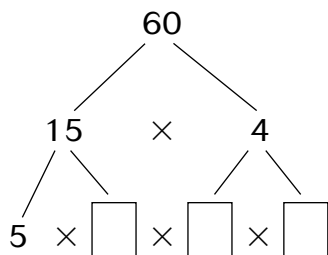
$3 \times 2 \times 2 \times 2$ , or  $2^3 \times 3$

Circle the numbers that are divisible by the number on the left.

- 1. divisible by **2**:    8      15      26      42      97      105      218
- 2. divisible by **5**:    14      10      25      18      975      1,005      2,340
- 3. divisible by **3**:    51      75      12      82      93      153      276

Complete the factor tree to find the prime factorization.

4.



5.

