

Greatest Common Factor

The greatest of the factors common to two or more numbers is called the **greatest common factor (GCF)** of the numbers. One way to find the GCF is to list the factors of the numbers.

EXAMPLE Find the GCF

1 Find the greatest common factor of 36 and 60.

METHOD 1 List the factors.

factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36

factors of 60: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

The greatest common factor of 36 and 60 is 12.

Common factors of
36 and 60: 1, 2, 3, 4, 6, 12

METHOD 2 Use prime factorization.

$$36 = 2 \cdot 2 \cdot 3 \cdot 3$$

$$60 = 2 \cdot 2 \cdot 3 \cdot 5$$

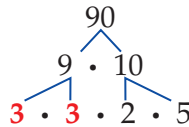
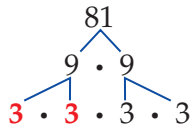
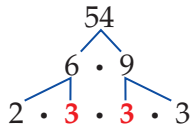
The GCF is $2 \cdot 2 \cdot 3$ or 12.

Common prime factors of
36 and 60: 2, 2, 3

EXAMPLE Find the GCF

2 Find the greatest common factor of 54, 81, and 90.

Use a factor tree to find the prime factorization of each number.



The common prime factors of 54, 81, and 90 are 3 and 3.

The GCF of 54, 81, and 90 is $3 \cdot 3$ or 9.