

# Highest Common Factor

The highest common factor (HCF) or greatest common factor is the **largest integer** (whole number) that two or more numbers can both be divided by.

## By listing factors (small numbers)

 **Example** Find the HCF of 12 and 18

**1** List the factors of each number in order:

Factors of 12: 1, 2, 3, 4, **6**, 12

Factors of 18: 1, 2, 3, **6**, 9, 18

**6** is the **highest** number that is in **both** lists.

**2** Select the **highest** number that is **common** to both lists. HCF of 12 and 18 = 6

## Using product of primes (large numbers)

 **Example** Find the HCF of 60 and 96

**1** Write both numbers as a product of primes:

$$60 = 2 \times 2 \times 3 \times 5$$

$$96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$$

You can use a **factor tree** to help you with this step.

**2** Find prime factors that are **common** to both lists.

**3** The HCF is the product of the common factors.

$$2 \times 2 \times 3 = 12$$