

## HCF and LCM

### HCF OR HIGHEST COMMON FACTOR

To find the highest common factor(HCF) of 18 and 30, first find the **factors** of each number:

Factors of 18 are 1, 2, 3, **6**, 9 and 18.

Factors of 30 are 1, 2, 3, 5, **6**, 10, 15, 30.

Which number appears in both? 1, 2, 3, and 6.

We are looking for the **highest** number which appears in both, which is 6.

We say that the HCF = 6

The HCF of two or more numbers is the largest number which will divide into those numbers exactly (that is, without leaving a remainder).

### Example

Find the HCF of these numbers:

18, 30, 12 and 42.

You have already found the factors of 18 and 30 (see above).

Factors of 18 are 1, 2, 3, **6**, 9, 18.

Factors of 30 are 1, 2, 3, 5, **6**, 10, 15, 30.

Factors of 12 are 1, 2, 3, 4, **6**, 12.

Factors of 42 are 1, 2, 3, **6**, 7, 14, 21, 42.

Which is the highest number to appear in all 4 numbers?

The answer is 6.

Therefore, 6 is the HCF.

Now do Exercise 1 in the same way.

### Exercise 1

Find the HCF of these groups of numbers

1. 8 and 12
2. 10, 15 and 30
3. 21 and 49
4. 18, 27 and 81

## LCM OR LOWEST COMMON MULTIPLE

To find the LCM of 3, 6 and 8, first, write down the **multiples** of the three numbers:

Multiples of 3 are 3, 6, 9, 12, 15, 18, 21, **24** and 27 ....

Multiples of 6 are 6, 12, 18, **24**, 30, 36 ...

Multiples of 8 are 8, 16, **24**, 32, 40 ...

Now look at the multiples to find the **lowest common number**.

The lowest number to appear in all three numbers is 24.

Therefore, 24 is the LCM

### Example

Find the LCM of 2, 6 and 12.

Multiples of 2 are 2, 4, 6, 8, 10, **12**, 14, 16 ...

Multiples of 6 are 6, **12**, 18, 24, 30 ...

Multiples of 12 are **12**, 24, 36 ...

Therefore the LCM is 12.

Now try these.

### Exercise 2

Find the LCM of the following:

1. 8 and 12
2. 3, 4 and 5
3. 20 and 25
4. 10, 15 and 30

**ANSWERS**

**HCF**

**Exercise 1**

- |    |   |    |   |
|----|---|----|---|
| 1. | 4 | 2. | 5 |
| 3. | 7 | 4. | 9 |

**LCM**

**Exercise 2**

- |    |     |    |    |
|----|-----|----|----|
| 1. | 24  | 2. | 60 |
| 3. | 100 | 4. | 30 |