

Y7L U3 Factors and Multiples. Knowledge Organiser

Integers are whole numbers e.g. -7, 2, 1058

The **product** is the value when you multiply e.g., the product of 4 and 11 is $4 \times 11 = 44$

The **multiples** of an integer are products of that integer (the times table)

e.g. the multiples of 6 are 6, 12, 18, 24, 30 ...

The **Lowest Common Multiple (LCM)** is the lowest number that is a multiple of the integers

E.g., Multiples of 8 are 8, 16, **24**, 32

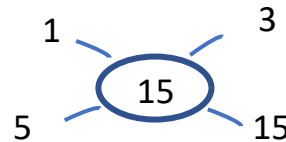
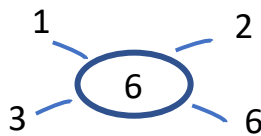
Multiples of 12 are 12, **24**, 36 ...

So the LCM of 8 and 12 is 24

The **factors** of an integer are the integers that can be multiplied to make the number

We often write the factors of an integer as **factor pairs**

e.g.



The factors of 6 are 1, 2, 3, 6

The factor pairs of 6 are 1×6 and 2×3

The factors of 15 are 1, 3, 5, 15

The factor pairs of 15 are 1×15 and 3×5

The **Highest Common Factor (HCF)** is the highest number that is a factor of the integers

e.g., The HCF of 6 and 15 is 3

The **square numbers** are :

1, 4, 9, 16, 25, 36, 49, ...

They are made by **squaring an integer**

$1 = 1 \times 1$, $4 = 2 \times 2$, $9 = 3 \times 3$

Square numbers are the only numbers that have an odd number of factors

Prime numbers are integers that have **EXACTLY 2** factors (one factor pair).

The number 1 is not a prime number because it has one factor

The first 8 prime numbers are:

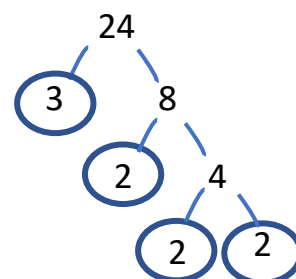
2, 3, 5, 7, 11, 13, 17, 19

Hegarty

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Every integer can be written as the **product of prime factors**.

A **factor tree** is a good way to find the prime factors



$$24 = 2 \times 2 \times 2 \times 3$$