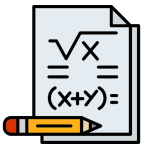


Factors

Express 28 as a product of two natural numbers.

⇒ 28 = _____

⇒ 28 = _____

⇒ 28 = _____

We can also say 28 can be exactly divided by: _____

A FACTOR is a number that, when multiplied with another number, produces a given product.

Therefore, the factors of 28 are: _____

What are the factors for 36? _____

Divisibility Test:

1. A number is divisible by 2 if it's *Last* digit is _____

   Example: _____

2. A number is divisible by 3 if the *Sum* of its digits is also divisible by ____

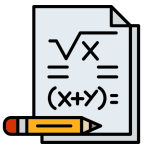
   Example: _____

3. A number is divisible by 5 if its Last digit is either ____ or ____.

   Example: _____

4. A number is divisible by 10 if its Last digit is ____.

   Example: _____



Multiples:

28 is a _____ of 4 and 7.

The first few multiples of 4 are:

⇒ 4 x 1 = 4

⇒ 4 x ____ = ____

⇒ 4 x ____ = ____

⇒ 4 x ____ = ____

⇒ 4 x ____ = ____

The first few multiples of 7 are:

⇒ 7 x 1 = 7

⇒ 7 x ____ = ____

⇒ 7 x ____ = ____

⇒ 7 x ____ = ____

⇒ 7 x ____ = ____

Relationships of 28 = 4 x 7

⇒ 4 is a _____ of 28.

⇒ 28 is a _____ of 4.

⇒ 7 is a _____ of 28.

⇒ 28 is a _____ of 7.

Prime Factorization:

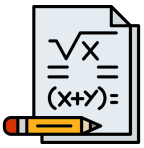
Consider the number 60. It is a ***composite*** number as it can be written as a product of 2 or more other numbers (60 = 6 x 10, 2 x 30, 3 x 20, 4 x 15, etc.).

If we break down a composite number and its factors until there are no more factors, we end up with a number made ***only from prime numbers*** (60 = 2 x 2 x 3 x 5)."

⇒ When a number is written as a ***Product of Prime Numbers*** we call this a **Prime Factorization**

Recall: Prime numbers are special numbers that have exactly two factors: 1 and the number itself (i.e. they are only divisible by 1 and themselves).

Common Prime #'s: _____



Example: Using a factor tree determine the Prime Factors of the following numbers? Express your answer in exponential form.

24 90 120

The Greatest Common Factor (GCF)

Let's find all the factors 18 and 24 as follows:

⇒ 18: _____

⇒ 24: _____

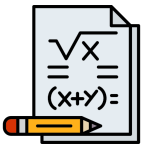
What are the common factors between 18 and 24? _____

What would be the **greatest** (i.e. biggest/largest) common factor? GCF (18, 24) ____

The Greatest Common Factor is the largest factor that is the same (i.e. common) between a set of numbers.
OR
The largest number that can be divided evenly into all the numbers.

This method can be tricky and take a lot of time. Alternatively, we can use *Prime Factorization* to help us find the GCF.

The **GCF** can be found by identifying *ALL* the Prime Factors *common* between the set of numbers and multiplying them together.



Example: Find the Prime Factors for the following pairs of numbers using a factor tree, then find the GCF

35 42

The Prime Factors of 35 and 42 are:

⇒ 35: _____

⇒ 42: _____

⇒ GCF = _____

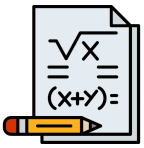
60 96

The Prime Factors of 60 and 90 are:

⇒ 60: _____

⇒ 96: _____

⇒ GCF = _____



Example: Find the Prime Factors for the following set of numbers using a factor tree, then find the GCF

36 54 72

The Prime Factors of 36, 54 and 72 are:

⇒ 36: _____

⇒ 54: _____

⇒ 72: _____

⇒ GCF = _____

24 48 60

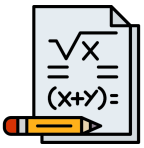
The Prime Factors of 24, 48 and 60 are:

⇒ 24: _____

⇒ 48: _____

⇒ 60: _____

⇒ GCF = _____



Lesson 4 Lowest Common Multiple (LCM)

Let us consider the following multiples of 12 and 18.

⇒ 12: _____

⇒ 18: _____

The common multiples between 12 and 18 include: _____

What is the **lowest** common multiple between 12 and 18? LCM (12, 18) = _____

The Lowest Common Multiple is the smallest number that is a multiple of each of the given numbers.

Again, this method can be tricky and take a lot of time. Alternatively, we can use *Prime Factorization* to help us find the LCM.

Example: Find the Prime Factors for 12 and 18

12 18

The Prime Factors of 12 and 18 are:

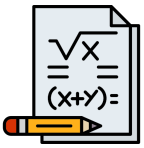
⇒ 12: _____ Exponential Form: _____

⇒ 18: _____ Exponential Form: _____

The **LCM** can be found by identifying *ALL* the prime factors of each number in *exponential form* and then multiplying the *highest powers* for each of the prime factors.

⇒ Prime Factors: _____

⇒ GCG = _____ = _____



Example: Find the LCM between 30 and 42

30 42

Example: Find the LCM between 20, 35, and 45.

20 35 45

Example: Find the LCM between 36, 48, and 60.

36 48 60