

1 Introduction

- 1.01 Calculate the area of a triangle being known the values of the base and height.
- 1.02 Given two numbers determine the greater one.
- 1.03 Given an integer value determine whether it is odd or even.
- 1.04 Calculate the roots of a quadratic equation. If there are no real roots must be sent an appropriate message.
- 1.05 Given an integer value determine its factors (numbers that divide the given number).
- 1.06 Given a list of N values calculate the arithmetic mean.
- 1.07 Calculate the factorial of a positive integer value.
- 1.08 Given a list of N values determine the maximum value and its position in the list.
- 1.09 Given a list of N values determine the two elements of higher value. Assume that these values are distinct.
- 1.10 Given a list of N values determine:
 - The maximum and minimum.
 - The number of maximum and minimum.
 - The position of the first maximum.
 - The position of the first minimum.
- 1.11 Given a list of N values calculate the greatest difference between two consecutive values.
- 1.12 Given a list of N values determine which values are greater than the adjacent values.
- 1.13 Given an integer value determine whether or not it is a prime number.
- 1.14 Generate M random numbers between 1 and N. All the M numbers should be different.
Ex: M = 5, N = 100; R: 75, 20, 80, 45, 98
- 1.15 Determine the integers with three digits that are equal to the sum of the cubes of its digits.
(Ex: $153 = 1^3 + 5^3 + 3^3$)
- 1.16 Determine the successive odd numbers whose sum is equal to N^3 when N assumes values between 1 and 20.
(Ex: $1^3 = 1$; $2^3 = 1 + 3 + 5$; $3^3 = 1 + 3 + 5 + 7 + 9$)
- 1.17 Calculate the first four perfect numbers. Perfect number is one that is equal to the sum of all its divisors, excluding itself.
- 1.18 Calculate a pair of friendly numbers.
A pair of numbers is said to be friendly if the sum of divisors of one (other than itself) is equal to the other and vice versa.
(Ex: 220, 284)
- 1.19 Determine the greatest common factor (GDC) of two integers.
- 1.20 Determine the first M prime numbers.

- 1.21 Determine the 61 twin prime numbers smaller than 2000.
Twin prime numbers are prime numbers that differ from two units.
(Ex: 3, 5; 1997, 1999)
- 1.22 Determine which number greater than 100 and less than 1000 which are not prime and cannot be transformed into a prime number by exchanging the order of its digits.
- 1.23 Determine the interchangeable prime numbers of 2 and 3 digits. Interchangeable prime numbers are the numbers that remain prime for all permutations of its digits.