Homework #1

Exercise 1.

The square root law: The square root can be calculated using a direct mathematical law that gives a value very close to the value of the real square root of any number.

It is usually used to calculate the square roots of imperfect squares. The law is as follows:

$$\sqrt{x} = \sqrt{s} + \frac{(x-s)}{2\sqrt{s}}$$

where these symbols represent the following:

X: is the number whose square root is to be calculated.

S: It is the nearest perfect square of the number whose square root is to be calculated.

Write a program that calculates the square root of a positive integer using this law.

Example1 :

The square root of 39 can be calculated as follows:

The nearest perfect square of 39 must be determined as 36.

Applying the square root law given in the previous equation is as follows:

$$\sqrt{39} = \sqrt{36} + \frac{(39-36)}{2\sqrt{36}}$$

The result of the equation is **6.25**, which is very close to the real square root of 39.

Example 2 : $\sqrt{47} = \sqrt{49} + \frac{(47-49)}{2\sqrt{49}}$

Exercise 2.

Write a program that allows you to enter a positive integer, display its prime factors

Example:

If X= 24 then the prime factors are X=2*2*2*2*3

If X=924 then the prime factors are X=2*2*3*7*11

Important Notes
- ➤ The answer should include a brief section for the analysis phase.
- ➤ Answers will be received before **_December 07, 2023_** . **No** answers will be **accepted** after this date
- ➤ Answers are received during practical work classes;
- ➤ The work is **individual**