

Chapter 12: Numbers - Exercises

Exercise 12 - 01: Using the Math.sqrt method

Write a program that prints the following table using the `sqrt` method in the `Math` class.

Number	SquareRoot
0	0.0000
2	1.4142
...	
18	5.2426
20	5.4721

Exercise 12 - 02: Approximating the square root

Implement the `sqrt` method. The square root of a number, `num`, can be approximated by repeatedly performing a calculation using the following formula:

$$\text{nextGuess} = (\text{lastGuess} + (\text{num} / \text{lastGuess})) / 2$$

When `nextGuess` and `lastGuess` are almost identical, `nextGuess` is the approximated square root.

The initial guess will be the starting value of `lastGuess` (can be 1). If the difference between `nextGuess` and `lastGuess` is less than a very small number, such as 0.0001, you can claim that `nextGuess` is the approximated square root of `num`.