Python Math Module Overview

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# 1. Importing the Math Module

Before using any math functions, you need to import the module:

import math

# 2. Common Math Functions

## 2.1 Square Root (sqrt())

The sqrt() function returns the square root of a number.

Example:  
import math  
print(math.sqrt(16)) # Output: 4.0

## 2.2 Power (pow())

The pow() function returns the value of one number raised to the power of another.

Example:  
import math  
print(math.pow(2, 3)) # Output: 8.0

## 2.3 Factorial (factorial())

The factorial() function returns the factorial of a number.

Example:  
import math  
print(math.factorial(5)) # Output: 120

# 3. Trigonometric Functions

## 3.1 Sine (sin())

The sin() function returns the sine of an angle (in radians).

Example:  
import math  
print(math.sin(math.pi / 2)) # Output: 1.0

## 3.2 Cosine (cos())

The cos() function returns the cosine of an angle (in radians).

Example:  
import math  
print(math.cos(math.pi)) # Output: -1.0

## 3.3 Tangent (tan())

The tan() function returns the tangent of an angle (in radians).

Example:  
import math  
print(math.tan(math.pi / 4)) # Output: 1.0

# 4. Logarithmic Functions

## 4.1 Natural Logarithm (log())

The log() function returns the natural logarithm (logarithm base e) of a number.

Example:  
import math  
print(math.log(2.7183)) # Output: ~1.0

## 4.2 Logarithm Base 10 (log10())

The log10() function returns the base-10 logarithm of a number.

Example:  
import math  
print(math.log10(100)) # Output: 2.0

# 5. Math Constants

## 5.1 Pi (pi)

The pi constant represents the value of π (approximately 3.14159).

Example:  
import math  
print(math.pi) # Output: 3.141592653589793

## 5.2 Euler’s Number (e)

The e constant represents the value of Euler's number (approximately 2.71828).

Example:  
import math  
print(math.e) # Output: 2.718281828459045