## Numbers in Python:

Python has 3 main numeric types:

- **int** → Integer numbers (whole numbers, positive/negative)
  Example: 10, -5, 1000
- **float** → Decimal numbers
  Example: 3.14, -7.5, 0.0
- **complex** → Numbers with real + imaginary part
  Example: 2 + 3j

```
x = 10
y = 3.14
z = 2 + 3j
print(type(x))  # <class 'int'>
print(type(y))  # <class 'float'>
print(type(z))  # <class 'complex'>
```

## Basic Math Functions:

Python provides many **built-in functions** for numbers:

- **abs(x)** → Absolute value
  print(abs(-5))  # 5
- **pow(x, y)** → Power (x^y)
  print(pow(2, 3))  # 8
- **round(x)** → Rounds number to nearest integer
  print(round(3.7))  # 4print(round(3.14159, 2))  # 3.14
- **min() & max()** → Find smallest/largest value
  print(min(2, 5, 7, 1))  # 1print(max(2, 5, 7, 1))  # 7

## Math Module:

Python has a special **math module** for advanced calculations.

- **Import first:**
  import math

- **math.sqrt(x)** → Square root
  print(math.sqrt(25))  # 5.0
- **math.ceil(x)** → Rounds up
  print(math.ceil(4.2))  # 5
- **math.floor(x)** → Rounds down
  print(math.floor(4.9))  # 4

- **math.pi** → Value of π (pi)
  print(math.pi)  # 3.141592653589793
- **math.factorial(x)** → Factorial
  print(math.factorial(5))  # 120

## Random Module:

Python also has a **random module** for generating random numbers.

- Import first:
  import random

- **random.random()** → Random float [0.0, 1.0)
  print(random.random())
- **random.randint(a, b)** → Random integer between a & b
  print(random.randint(1, 6))  # like dice roll
- **random.choice(list)** → Randomly picks one element
  fruits = ["apple", "banana", "cherry"]
  print(random.choice(fruits))

## Real-Life Examples:

- import random
  print("You rolled:", random.randint(1,6))

- import random
  fruits = ["Apple", "Banana", "Mango", "Orange"]
  print("Today you should eat:", random.choice(fruits))

- import math

  num = int(input("Enter a number: "))
  print("Square root is:", math.sqrt(num))

- num = float(input("Enter a decimal number: "))
  print("Rounded value is:", round(num))

- import random

  colors = ["Red", "Blue", "Green", "Yellow"]
  print("Your lucky color today is:", random.choice(colors))

## Practice Program:

"Write a Python program that takes a number as input, prints its absolute value, its square root, and also prints a random lucky number between 1 and 10."