Practical No 2

Aim

Write a Python program to calculate areas of geometric figures like circle, rectangle, and triangle.

Apparatus / Software Required

- Python Interpreter (Python 3.14.2)

Theory

Calculation of Area of Geometric Figures

The area of common geometric figures can be calculated using standard mathematical formulas in Python.

1. Area Formulas

Circle

Formula:

Area=Pi*r*r

Where:

- π (pi) is a constant
- r is the radius of the circle

Rectangle

Formula:

Area=l*b

Where:

- l is the length
- b is the breadth

Triangle

Formula:

Area=0.5*b*h

Where:

- b is the base
- h is the height

2. Variables

Variables are used to store input values and calculated areas.

Examples:

- `r` → **radius**
- `l` → **length**
- `b` → **breadth or base**
- `h` → **height**

3. Data Types

- `float` **data type is used to handle decimal values.**

Example:

- `float(input())`

4. Input Function

- `input()` **is used to accept values from the user.**
- **Input is initially taken as a string.**

5. Type Conversion

- **Input values are converted from string to float using** `float()`.
  Example:
- `r = float(input())`

6. Arithmetic Operators

- `*` → multiplication
- `+` → addition
- `/` → division

7. Mathematical Constants and Modules

- The `math` module is used for mathematical operations.
- `math.pi` is used to get the value of π for circle area calculation.

8. Expressions

Mathematical formulas are written using Python syntax.

Example:

- `area_circle = math.pi * r * r`

9. Output Function

- `print()` is used to display the calculated areas.

10. Sequential Execution

- Python executes statements line by line in the order they are written.

Algorithm

1. Start
2. Input radius of the circle
3. Calculate area of the circle using pi× r × r
4. Input length and breadth of the rectangle
5. Calculate area of the rectangle using length × breadth
6. Input base and height of the triangle
7. Calculate area of the triangle using ½ × base × height
8. Display all calculated areas
9. Stop

Program Code

Output

Conclusion