```python
# 1. **Area of a Square**
# Write a program that takes the side length of a square as input and prints its
area.

a= float(input("Enter length of square: "))

area= a**2

print("Area of square is: ", area)
```

```python
# 2. **Area of a Rectangle**
# Input width and height. Calculate the area.

width= float(input("Enter width of rectangle: "))
height= float(input("Enter height of rectangle: "))

area= height * width

print("Area of Rectangle:", area)
```

```python
# 3. **Area of a Circle**
# radius. Use π = 3.14 to find the area.

radius= float(input("Enter radius of circle: "))

pi= 3.14
area= pi * radius**2

print("Area of Circle: ", area)
```

```python
# 4. **Area of a Triangle (Base × Height)**
# Input base and height; find the area.

base= float(input("Enter base of triangle:"))
height= float(input("Enter height of tringle:"))

area= (base * height) / 2

print("Area of Triangle:", area)
```

```python
# 5. **Area of a Parallelogram**
# Input base and vertical height.

base= float(input("Enter base of parallelogram: "))
height= float(input("Enter height of parallelogram: "))

area= base * height

print("Area of Parallelogram: ", area)
```

```python
# 6. **Area of a Rhombus**
# Input diagonals d1 and d2.

d1= float(input("Enter length of first diagonal of rhombus: "))
d2= float(input("Enter length of second diagonal of rhombus: "))

area= (d1 * d2) / 2

print("Area of Rhombus: ", area)
```

```python
# 7. **Area of a Trapezium**
# Input parallel sides a, b and height h.

a= float(input("Enter length of first parallel side of trapezium: "))
b= float(input("Enter length of second parallel side of trapezium: "))
h= float(input("Enter height of trapezium: "))

area= ((a + b) / 2) * h

print("Area of Trapezium: ", area)
```

```python
# 8. **Area of a Isosceles Triangle**
# Input equal sides and base; use suitable formula.

import math
a= float(input("Enter length of equal sides of isosceles triangle: "))
b= float(input("Enter length of base of isosceles triangle: "))

height= math.sqrt(a**2 - (b**2 / 4))
area= (b * height) / 2

print("Area of Isosceles Triangle: ", area)
```

```python
# 9. **Area of a Right-angled Triangle**
# Input perpendicular and base.

perpendicular= float(input("Enter length of perpendicular side of right-angled
triangle: "))
base= float(input("Enter length of base side of right-angled triangle: "))

area= (perpendicular * base) / 2

print("Area of Right-angled Triangle: ", area)
```

```python
# 10. **Area of a Circle (User chooses π)**
# Ask user: "Enter π as 3.14 or 22/7", then compute.

radius= float(input("Enter the radius of the circle: "))
pi_choice= input("Enter π as 3.14 or 22/7: ")

if pi_choice == "3.14":
```

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    pi= 3.14
elif pi_choice == "22/7":
    pi= 22 / 7
else:
    print("Invalid choice for π. Please enter either 3.14 or 22/7.")
    exit()

area= pi * radius * radius

print("Area of Circle: ", area)
```

```python
# 11. **Menu-Driven Area Calculator**
# Show menu of shapes; compute area based on user choice.

import math
def area_calculator():
    while True:
        print("\n--- Area Calculator Menu ---\n")
        print("1. Area of Circle")
        print("2. Area of Rectangle")
        print("3. Area of Triangle")
        print("4. Area of Square")
        print("5. Exit")

        choice= input("\nChoose a shape (1-5): ")

        if choice == "1":
            radius= float(input("Enter the radius of the circle: "))
            pi_choice= input("Enter π as 3.14 or 22/7: ")

            if pi_choice == "3.14":
                pi = 3.14
            elif pi_choice == "22/7":
                pi = 22 / 7
            else:
                print("Invalid choice for π. Please enter either 3.14 or 22/7.")
                return

            area= pi * radius * radius
            print("Area of Circle: ", area)

        elif choice == "2":
            length= float(input("Enter the length of the rectangle: "))
            width= float(input("Enter the width of the rectangle: "))
            area= length * width
            print("Area of Rectangle: ", area)

        elif choice == "3":
            base= float(input("Enter the base of the triangle: "))
            height= float(input("Enter the height of the triangle: "))
            area= 0.5 * base * height
            print("Area of Triangle: ", area)
```

```python
        elif choice == "4":
            side= float(input("Enter the side of the square: "))
            area= side * side
            print("Area of Square: ", area)

        elif choice == "5":
            print("Exiting the program...... Goodbye!")
            return

        else:
            print("Invalid choice. Please select a valid option from the menu.")

# Run the area calculator
area_calculator()
```

```python
# 12. **Area of Circle with Math Library**
# Use `math.pi` instead of constant 3.14.

import math

radius= float(input("\nEnter radius: "))
area= math.pi * math.pow(radius, 2)
print(f"Area of Circle = {area:.2f}")
```

```python
# 13. **Calculate Cost Based on Area**
# A painter charges ₹10 per sq.ft; find total cost for a rectangular wall.

length = float(input("\nEnter length of wall (in ft): "))
breadth = float(input("Enter breadth of wall (in ft): "))

area = length * breadth
cost_per_sqft = 10
total_cost = area * cost_per_sqft

print("Total cost to paint the wall", total_cost)
```

```python
# 14. **Garden Plot Area**
# A rectangular garden has a circular fountain cut out in the center. Find the
remaining area.

import math

length= float(input("\nEnter length of the rectangular garden: "))
width= float(input("Enter width of the rectangular garden: "))
radius= float(input("Enter radius of the circular fountain: "))

rect_area= length * width
circle_area= math.pi * radius ** 2
remaining_area= rect_area - circle_area
```

```python
if remaining_area < 0:
    print("Error: Fountain area is larger than the garden!")
else:
    print("Remaining Garden Area", remaining_area)
```

```python
# 15. **Room Flooring Calculator**
# Given room dimensions and tile area, find number of tiles needed.

import math

# Input room dimensions
room_length = float(input("\nEnter length of the room: "))
room_width = float(input("Enter width of the room: "))

# Input tile dimensions
tile_length = float(input("Enter length of a tile: "))
tile_width = float(input("Enter width of a tile: "))

# Calculate areas
room_area = room_length * room_width
tile_area = tile_length * tile_width

# Calculate number of tiles (rounded up)
tiles_needed = math.ceil(room_area / tile_area)

print("\nRoom Area: ", room_area,"Sq Units")
print("Tile Area: ", tile_area,"Sq Units")
print("Number of Tiles Needed: ", tiles_needed,"\n")
```

```python
# 16. **Area of Polygon (User enters number of sides &amp; side length)**
# Use formula for regular polygon.
import math

# Input from user
print("\n** Sides must be equal or Greaterthan 3 **")
n = int(input("Enter number of sides: "))
a = float(input("Enter side length: "))

# Area calculation
area = (n * (a ** 2)) / (4 * math.tan(math.pi / n))

# Output
print("Area of regular polygon:", area)
```

```python
# 17. **Land Area Converter**
# Input land dimensions in meters; output area in sq.m, sq.ft, and acres.

# Input dimensions in meters
length = float(input("\nEnter length in meters: "))
width  = float(input("Enter width in meters: "))
```

```python
# Area in square meters
area_m2 = length * width

# Convert to square feet (1 m² = 10.7639 ft²)
area_ft2 = area_m2 * 10.7639

# Convert to acres (1 acre = 4046.8564224 m²)
area_acres = area_m2 / 4046.8564224

# Output results
print("\nArea in square meters:", area_m2)
print("Area in square feet:", area_ft2)
print("Area in acres:", area_acres,"\n")
```

```python
# 21. **Area of Sector of a Circle**
# Input radius and angle (in degrees or radians).

import math

radius= float(input("\nEnter radius of circle: "))
degree= float(input("Enter angle in degree: "))

# Area using degree formula
area= (degree/360) * math.pi * (radius**2)

print("Area of Sector: ",round(area, 2),"°\n")
```

```python
# 22. **Paint Area Calculator**
# Calculate wall area excluding windows and doors.

wall_len= float(input("\nEnter Length of wall: "))
wall_wid= float(input("Enter Width of wall: "))

door_len= float(input("Enter length of door:"))
door_wid= float(input("Enter width of door:"))

window_height= float(input("Enter window height: "))
window_width= float(input("Enter window width: "))

wall_area= wall_len * wall_wid

door_area= door_len * door_wid
window_area= window_height * window_width

Total_area= wall_area - (door_area + window_area)


print("Area of Wall: ", wall_area,"meter")
print("Area of Door: ", door_area,"meter")
print("Area of Window: ", window_area,"meter")
print("Total Wall Area to paint: ", Total_area,"meter\n")
```

```python
# 23. **Area of Oval (Ellipse)**
# Input two radii a and b; area = πab.

import math

# input radii values
a= float(input("\nEnter semi-major radii (a): "))
b= float(input("Enter semi-minor radii (b): "))

# Calculating Area of Ellipse
area= math.pi * a * b

# output
print("Area of Oval(Ellipse): ", round(area, 2),"\n")
```

```python
# 24. **Area of a Kite**
# Use diagonal-based formula.

# Input values
d1= float(input("\nEnter first diagonal (d1): "))
d2= float(input("Enter second diagonal (d2): "))

# Calculating Area of Kite
area= 0.5 * d1 * d2

# Output
print("Area of Kite: ", round(area, 2),"\n")
```

```python
# 25. **Area of Triangle using Heron's Formula**
# Input 3 sides and compute area.

import math

# input values
a= float(input("\nEnter first side (a): "))
b= float(input("Enter second side (b): "))
c= float(input("Enter third side (c): "))

# Evaluating Semi-Parameter
s= (a+b+c)/2

# Calculating Area Using Heron's Formula
area= math.sqrt(s*(s-a)*(s-b)*(s-c))

# Output
print("Area of Triangle: ", round(area, 2),"\n")
```

```python
# 1. **Celsius to Fahrenheit Converter**
# Input temperature in °C and convert to °F.

# Input Value
c= float(input("\nEnter temperature in Celsius: "))

# Convert Celsius to Fahrenheit
f= ((9/5) * c) + 32

# Output
print("Your Temperature in Fahrenheit: ", round(f, 2),"°F\n")
```

```python
# 2. **Kilometers to Meters &amp; Centimeters**
# Input distance in km; display meters and centimeters.

# Input Distance in Kilometer
km= float(input("Enter distance in kilometer: "))

# Conversion
meter= km * 1000
centimeter= meter * 100

# Output
print("Distance in Meter: ", round(meter, 2),"m")
print("distance in Centimeter: ", round(centimeter, 2),"cm")
```

```python
# 3. **Minutes to Hours**
# Input total minutes; convert into hours and remaining minutes.

# Input Total Minutes
minute= int(input("\nEnter total minutes: "))

# Minues to Hours
hour= minute // 60
remaining_minutes= minute % 60

# Output
print(hour,"Hour", remaining_minutes,"Minutes\n")
```

```python
# 4. **Grams to Kilograms**
# Convert given weight in grams to kilograms.

# Input weight in grams
grams = float(input("\nEnter weight in grams: "))

# Conversion
kilograms = grams / 1000

# Output
print("Weight in kilograms:", round(kilograms, 2),"Kg\n")
```

```python
# 5. **Meters to Feet**
# Convert given length in meters to feet.

# Input Length in Meters
meters= float(input("\nEnter length in meter: "))

# Convert Meter into Feet
feet= meters * 3.28084

# Output
print("Length in Feet: ", round(feet, 2),"ft\n")
```

```python
# 6. **Liters to Milliliters**
# Convert liquid quantity from L to mL.

# Input liquid quantity in liters
liters = float(input("\nEnter quantity in liters: "))

# Conversion
milliliters = liters * 1000

# Output
print("Quantity in milliliters:", round(milliliters, 2),"ml\n")
```

```python
# 7. **Fahrenheit to Kelvin**
# Convert using formula K = (F - 32) × 5/9 + 273.15.

# Input Temperature in Fahrenheit
fahrenheit= float(input("\nEnter temperature in fahrenheit: "))

# Conversion
kelvin= (fahrenheit - 32) * (5/9) + 273.15

# Output
print("Temperature in Kelvin: ", round(kelvin, 2),"°K\n")
```

```python
# 8. **Rupees to Paise**
# Convert rupees to paise.

# Input amount in rupees
rupees = float(input("\nEnter amount in rupees: "))

# Conversion
paise = rupees * 100

# Output
print("Amount in paise:", round(paise, 2),"Paisa\n")
```

```python
# 9. **Days to Weeks and Days**
# Input number of days; convert to weeks + extra days.
```

```python
# Input total days
days = int(input("\nEnter number of days: "))

# Conversion
# integer division
weeks = days // 7
# remainder
extra_days = days % 7

# Output
print(weeks,"Weeks", extra_days,"Extra days\n")
```

```python
# 10. **Simple Speed Conversion**
# Convert speed from km/h to m/s.

# Input speed in km/h
kmph = float(input("\nEnter speed in km/h: "))

# Conversion
mps = kmph / 3.6

# Output
print("Speed:", round(mps, 2),"m/s\n")
```