

Start coding or [generate](#) with AI.

✓ 1. Write a program to input two numbers and print their sum.

```
num1 = float(input("Enter first number: "))
num2 = float(input("Enter second number: "))

sum = num1 + num2
print(f"The sum of {num1} & {num2} is : {sum}")
```

```
↵ Enter first number: 1
Enter second number: 1
The sum of 1.0 & 1.0 is : 2.0
```

✓ 2. Write a program that takes length and width and finds the perimeter of a rectangle.

```
length = float(input("Enter the length: "))
width = float(input("Enter the width: "))

perimeter = 2 * (length + width)
print(f"The perimeter of rectangle is: {perimeter}")
```

```
↵ Enter the length: 5
Enter the width: 3
The perimeter of rectangle is: 16.0
```

✓ 3. Given two numbers, print True if the sum of both numbers is less than 100. Otherwise print False.

```
num1 = float(input("Enter first number: "))
num2 = float(input("Enter second number: "))

if num1 + num2 < 100:
    print("True")
else:
    print("False")
```

```
↵ Enter first number: 88
Enter second number: 8
True
```

✓ 4. Write a program that takes an integer in minutes and converts it to seconds.

```
minute = int(input("Enter minutes: "))
second = minute * 60
print(f"{minute} min is equal to {second} seconds!")
```

```
↵ Enter minutes: 1
1 min is equal to 60 seconds!
```

✓ 5. Write a program that takes two integers (hours, minutes), converts them to seconds, and adds them

```
hours = int(input("Enter how many hours? "))
minutes = int(input("Enter how many minutes? "))

h_t_s = (hours)*60*60
m_t_s = (minutes)*60

total_seconds = h_t_s + m_t_s
```

```
print(f"Total seconds of {hours} hour & {minutes} minute is: {total_seconds}")
```

```
Enter how many hours? 1
Enter how many minutes? 1
Total seconds of 1 hour & 1 minute is: 3660
```

6. Write a program to print True when num1 is equal to num2; otherwise return False.

```
num1 = float(input("Enter first number: "))
num2 = float(input("Enter first number: "))

if num1 == num2:
    print("True")
else:
    print("False")
```

```
Enter first number: 3
Enter first number: 3
True
```

7. Write a program that takes a name and print a greeting in the form of a string.

```
name = input("Enter your name: ")
print(f"Hello! {name} :)")
```

```
Enter your name: rahul
Hello! rahul :)
```

13. Python program for Arithmetic Operations

```
num1 = float(input("Enter first number: "))
num2 = float(input("Enter first number: "))

#operations
addition = num1 + num2
subtraction = num1 - num2
multiplication = num1 * num2
division = num1 / num2
floor_division = num1 // num2
modulus = num1 % num2

print(f"addition: {num1} + {num2} = {addition}")
print(f"subtraction: {num1} - {num2} = {subtraction}")
print(f"multiplication: {num1} * {num2} = {multiplication}")
print(f"integer division: {num1} / {num2} = {division}")
print(f"floor division: {num1} // {num2} = {floor_division}")
print(f"modulus of {num1} & {num2} is: {modulus}")
```

```
Enter first number: 5
Enter first number: 5
addition: 5.0 + 5.0 = 10.0
subtraction: 5.0 - 5.0 = 0.0
multiplication: 5.0 * 5.0 = 25.0
integer division: 5.0 / 5.0 = 1.0
floor division: 5.0 // 5.0 = 1.0
modulus of 5.0 & 5.0 is: 0.0
```

14. Python program to find Cube of a Numbers of given range values

```
start, end = map(int, input("Enter you starting number and last number: ").split())
cube = []

for num in range(start, end + 1,1):
    cube.append(num**3)
print(f"Our cubed number list is: {cube}")
```

```
Enter you starting number and last number: 1 10
Our cubed number list is: [1, 8, 27, 64, 125, 216, 343, 512, 729, 1000]
```

✓ 15. Python program to find Largest number from list

```
Numbers = list(map(int, input("Enter numbers (space-seperated): ").split()))
largest_number = Numbers[0]
if not Numbers:
    print("list not having numbers!")
else:
    for num in Numbers:
        if num > largest_number:
            largest_number = num
    print(f"The largest number from the list is: {largest_number}")
```

↗ Enter numbers (space-seperated): 1 2 3 4 5 6 7
The largest number from the list is: 7

✓ 15. Python program to find Largest of 2 Numbers

```
num1 = float(input("Enter first number: "))
num2 = float(input("Enter first number: "))

if num1 > num2:
    largest = num1
else:
    largest = num2
print(f"the largest number between {num1} and {num2} is: {largest}")
```

↗ Enter first number: 2
Enter first number: 5
the largest number between 2.0 and 5.0 is: 5.0

✓ 16. Python program to find Largest of 3 Numbers

```
num1,num2,num3 = map(float, input("Enter three numbers: ").split())

if num1 >= num2 and num1 >= num3:
    largest = num1
elif num2 >= num1 and num2 >= num3:
    largest = num2
else:
    largest = num3

print(f"the largest number among {num1}, {num2} and {num3} is: {largest}")
```

↗ Enter three numbers: 1 5 87
the largest number among 1.0, 5.0 and 87.0 is: 87.0

✓ 17. Python program for Leap Year

```
year = int(input("Enter year: "))

if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
    print(f"{year} is a leap year!")
else:
    print(f"{year} is not a leap year!")
```

↗ Enter year: 2024
2024 is a leap year!

✓ 18. Python program to find Odd or Even number from list and create new lists of odd and even number and print them

```
numbers = list(map(int, input("Enter numbers: ").split()))

even_numbers = [num for num in numbers if num % 2 == 0]
odd_numbers = [num for num in numbers if num % 2 != 0]

print(f"original list is: {numbers}")
```

```
print(f"odd number list is : {odd_numbers}")
print(f"even number list is: {even_numbers}")
```

```
Enter numbers: 1 5 4 2 34 7 8 09 34
original list is: [1, 5, 4, 2, 34, 7, 8, 9, 34]
odd number list is : [1, 5, 7, 9]
even number list is: [4, 2, 34, 8, 34]
```

✓ 19. Python Program to Separate Positive and Negative Numbers into Sets

```
numbers = list(map(int, input("Enter numbers: ").split()))

positive_numbers = set()
negative_numbers = set()
for num in numbers:
    if num > 0:
        positive_numbers.add(num)
    elif num < 0:
        negative_numbers.add(num)

print(f"original numbers list is: {numbers}")
print(f"positive numbers list is: {positive_numbers}")
print(f"negative numbers list is: {negative_numbers}")
```

```
Enter numbers: 1 5 -3 6 -2 -76 98 -45
original numbers list is: [1, 5, -3, 6, -2, -76, 98, -45]
positive numbers list is: {1, 98, 5, 6}
negative numbers list is: {-45, -76, -3, -2}
```

✓ 20. Python program to find Profit Or Loss

```
selling_price, cost_price = map(float, input("Enter selling and cost price of product: ").split())

profit_or_loss = selling_price - cost_price

if profit_or_loss > 0:
    print(f"profit! profit amount is: {profit_or_loss}")
elif profit_or_loss < 0:
    print(f"loss! loss amount is: {profit_or_loss}")
else:
    print(f"No profit or loss!!")
```

```
Enter selling and cost price of product: 50 80
loss! loss amount is: -30.0
```

✓ 21. Collect values for principal, rate, time, and the number of compounding intervals from the user and write a program to compute compound interest and total amount.

```
principle,rate,time,intervals = map(float, input("Enter the principle amount, rate%, time perios and number of times compound interest wi
intervals = int(intervals)

amount = principle * ( 1 + rate/100*intervals )**(time * intervals)
compound_interest = amount - principle

print(f"The compound interest on the total amount of Rs. {amount} is: {compound_interest}")
```

```
Enter the principle amount, rate%, time perios and number of times compound interest will computed: 100 2.5 1 2
The compound interest on the total amount of Rs. 110.25 is: 10.25
```

✓ 22. check weather number is divisible by 5 & 11

```
def divisible(number):
    if number % 5 == 0 and number % 11 == 0:
        return True
    else:
        return False
number = int(input("Enter your number: "))
if divisible(number):
    print(f"number {number} is divisible by 5 & 11")
else:
    print(f"number {number} is not divisible by 5 & 11")
```

```
↵ Enter your number: 5
number 5 is not divisible by 5 & 11
```

✓ 23. Program to Store Powers in a Set

```
power_set = set()
number = int(input("Enter number of values you wants to power of: "))
for _ in range(number):
    base, exponent = map(float, input("Enter base and exponent values: ").split())
    power = base**exponent
    power_set.add(power)
print(f"the power set is: {power_set}")
```

```
↵ Enter number of values you wants to power of: 4
Enter base and exponent values: 2 3
Enter base and exponent values: 4 5
Enter base and exponent values: 6 7
Enter base and exponent values: 8 9
the power set is: {8.0, 1024.0, 279936.0, 134217728.0}
```

✓ 25. Python program to find Roots of a Quadratic Equation

```
import cmath
def root(a,b,c):
    sqrt_part = cmath.sqrt(b**2 - 4*a*c)
    root1 = (-b + sqrt_part) / 2*a
    root2 = (-b - sqrt_part) / 2*a
    return root1, root2

a,b,c = map(float, input("Enter a,b,c coefficients: ").split() )

root1, root2 = root(a,b,c)
print(f"the roots of quadratic equation are: root1 {root1}, root2 {root2}")
```

```
↵ Enter a,b,c coefficients: 3 4 6
the roots of quadratic equation are: root1 (-6+11.224972160321824j), root2 (-6-11.224972160321824j)
```

✓ 26. Python program to find Student Grade

```
score = float(input("Enter your score: "))

grade_A = (90,100)
grade_B = (80, 89)
grade_C = (70,79)
grade_D = (60, 69)
grade_E = (50, 59)
grade_F = (0, 49)

if score >= grade_A[0] and score <= grade_A[1]:
    grade = "A"
elif score >= grade_B[0] and score <= grade_B[1]:
    grade = "B"
elif score >= grade_C[0] and score <= grade_C[1]:
    grade = "C"
elif score >= grade_D[0] and score <= grade_D[1]:
    grade = "D"
elif score >= grade_E[0] and score <= grade_E[1]:
    grade = "E"
else:
    grade = "F"
```

```
grade = input("Enter your grade: ")

print(f"your grade is: {grade}")
```

Enter your score: 99
your grade is: A

27. Python program to find Simple Interest

```
p,r,t = map(float, input("Enter principle amount, rate% and time period: ").split())
si = p*(r/100)*t

print(f"the simple interest principle amount of Rs. {p} is Rs. {si}")
```

Enter principle amount, rate% and time period: 1000 4 1
the simple interest principle amount of Rs. 1000.0 is Rs. 40.0

28. Python Program to Find the Sum and Average Of given Numbers

```
numbers = list(map(float, input("Enter you numbers: ").split()))

sum = 0
count = 0
for num in numbers:
    sum = sum + num
    count = count + 1
avg = sum / count

print(f"The sum & average of provided numbers is {sum:.2f} & {avg:.2f} respectively...")
```

Enter you numbers: 2 3 4 5 6 7 8 9
The sum & average of provided numbers is 44.00 & 5.50 respectively...

29. Python program to find Total Average & Percentage of 5 Subjects

```
sub1,sub2,sub3,sub4,sub5 = map(float, input("Enter each 5 subject marks out of 100: ").split())
total_marks_obtained = sub1 + sub2 + sub3 + sub4 + sub5
max_marks = 500
avg_marks = total_marks_obtained / 5
percentage = ( total_marks_obtained / max_marks ) *100
print(f"The average of all 5 subject marks is: {avg_marks} & percentage is: {percentage:.2f}")
```

Enter each 5 subject marks out of 100: 99 90 98 90 88
The average of all 5 subject marks is: 93.0 & percentage is: 93.00

30. Python program to print Last Digit in a Number

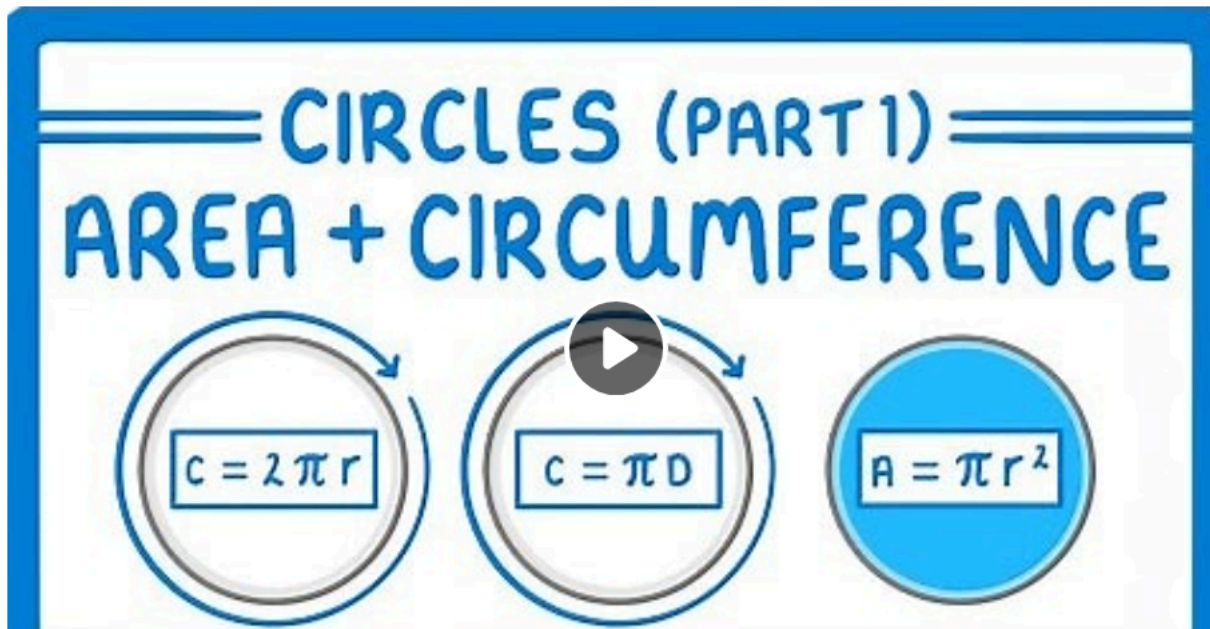
```
number = input("Enter your number: ")
last_digit = number[-1]
print('last digit of number is: ', last_digit)
```

Enter your number: 2283785739373
last digit is: 3

```
#another way using modulus operator
number = int(input("Enter your number: "))
last_digit = number % 10
print('last digit of number is: ', last_digit)
```

Enter your number: 2837465848
last digit of number is: 8

31. Python Program to calculate Diameter, Circumference, and Area of a Circle.

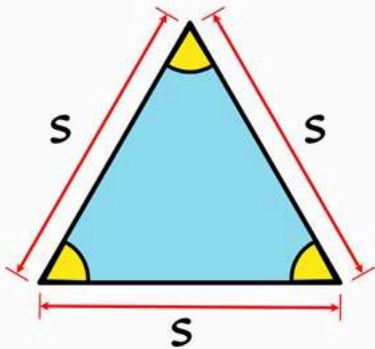


```
import math
r = float(input("Enter the radius: "))
diameter = 2 * r
circumference = 2 * math.pi * r
area = math.pi * r**2
print(f"The diameter, circumference and area of a circle having radius of {r} cm is {diameter:.2f} cm, {circumference:.2f} cm & {area:.2f} cm**2 respectively.")
```

Enter the radius: 4
The diameter, circumference and area of a circle having radius of 4.0 cm is 8.00 cm, 25.13 cm & 50.27 cm**2 respectively.

32. Python Program to find Equilateral Triangle Area

Area of Equilateral Triangle



$$A = \frac{\sqrt{3}}{4} s^2$$

©CHILIMATH

```
## area of equilateral triangle is: Area = sqrt(3)/4 * (side**2)

import math
s = float(input("Enter the side length: "))

area = math.sqrt(3)/4 * (s**2)

print(f"The area of an equilateral triangle is {area:.2f} cm**2")
```

Enter the radius: 4
The area of an equilateral triangle is 6.93 cm**2

✓ 33. Python Program to check Triangle is Valid or Not

```
#to check triangle is valid or not we have to use "TRIANGLE INEQUALITY THEOREM". This tells that sum of any two sides is always greater
# b + c > a
# c + a > b
# a + b > c
def equal_triangle(a,b,c):
    if b + c > a and c + a > b and a + b > c:
        return True
    else:
        return False
a,b,c = map(float, input("Enter values for side1, side2 & side3: ").split())
check = equal_triangle(a,b,c)
if check:
    print(f"Valid Triangle!")
else:
    print(f"Not Valid Triangle!")
```

↗ Enter values for side1, side2 & side3: 5 8 9
Valid Triangle!

✓ 34. Python Program to Find angle of a Triangle if two angles are given

```
def third_angle(angle1, angle2):
    if angle1 + angle2 > 0 and angle1 + angle2 < 180:
        angle3 = 180 - (angle1 + angle2)
        print(f"The third angle of an triangle is {angle3} degree")
    else:
        print(f"Invalid input angles!")
angle1,angle2 = map(float, input("Enter values for angle1 and angle2 in degree: ").split())
angle = third_angle(angle1,angle2)
```

↗ Enter values for angle1 and angle2 in degree: 30 130
The third angle of an triangle is 20.0 degree

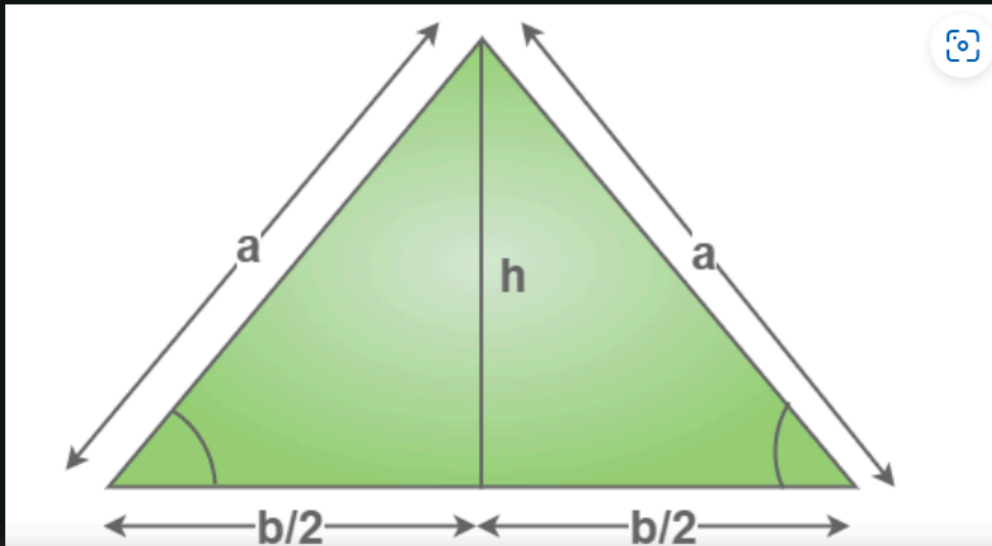
✓ 35. Python Program for Isosceles Triangle Area

Isosceles triangle area = $\frac{1}{2}[\sqrt{a^2 - b^2/4}] \times b$

where,

***b** = the isosceles triangle's base*

***a** = the length of two equal sides*



```
base, height = map(float, input("Enter base and height values in cm, if you don't know height value then simply write 0: ").split())
if height == 0:
    height = math.sqrt(a**2 - (b/2)**2)
    area = ( base * height ) / 2
    print(f"computed height is {height} cm")
else:
    area = ( base * height ) / 2

print(f"The area of an isosceles triangle is {area} cm**2 ")
```

Enter base and height values in cm, if you don't know height value then simply write 0: 5 3
The area of an isosceles triangle is 7.5 cm**2

36. Python program to find Area of a Trapezoid

```
base1, base2, height = map(float, input("Enter values for base1, base2 and height respectively in centimeters: ").split())
area = (base1 + base2)/2 * height
print(f"The area of a trapezoid is {area} cm**2")
```

Enter values for base1, base2 and height respectively in centimeters: 8 12 9
The area of a trapezoid is 90.0 cm**2

37. Python Program for Parallelogram Area

```
#parallelogram having opposite sides equal
base, height = map(float, input("Enter base and height values in cm: ").split())
area = base * height
print(f"The area of a parallelogram is {area} cm**2")
```

Enter base and height values in cm: 5 8
The area of a parallelogram is 40.0 cm**2

38. Python program to find Rectangle Area using length and width

```
# area of rectangle is length * width
length, width = map(float, input("Enter length and width values in cm: ").split())
area = length * width
print(f"The area of a reactangle is {area} cm**2")
```

Enter length and width values in cm: 4 6
The area of a reactangle is 24.0 cm**2

39. Python program to find Rectangle Perimeter using length and width

```
# perimeter of rectangle is 2 * (length + width)
length, width = map(float, input("Enter length and width values in cm: ").split())
perimeter = 2 * (length + width)
print(f"The perimeter of a reactangle is {round(perimeter)} cm")
```

Enter length and width values in cm: 5 6
The perimeter of a reactangle is 22 cm

40. Python program to find Area of a Right Angled Triangle

```
base, height = map(float, input("Enter base and height values in cm: ").split())
area = 0.5 * base * height
print(f"The area of a right angle triangle is {round(area)} cm**2")
```

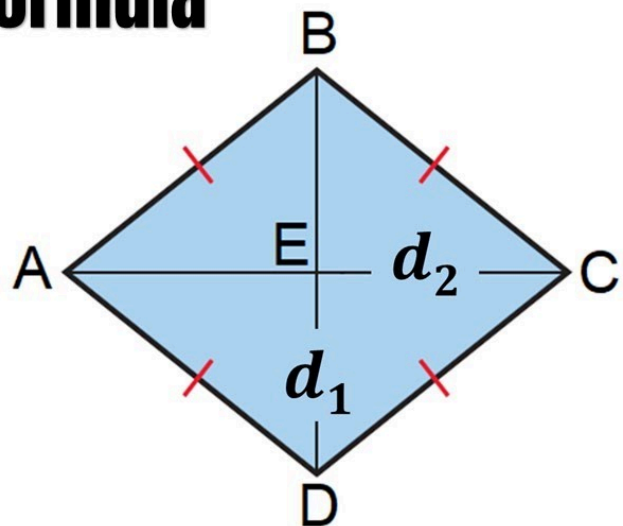
Enter base and height values in cm: 4 5
The area of a right angle triangle is 10 cm**2

41. Python program for Rhombus Area

Area of Rhombus Formula

How to prove it?

$$A = \frac{d_1 \times d_2}{2}$$



```
d1,d2 = map(float, input("Enter values for diagonal_1 and diagonal_2 in cm: ").split())
area = 0.5 * d1 * d2
print(f"The area of a rhombus is {round(area)} cm**2")
```

Enter values for diagonal_1 and diagonal_2 in cm: 4 4
The area of a rhombus is 8 cm**2

42. Python program for Rhombus Perimeter

```
a = float(input("Enter side of a rhombus: "))
perimeter = 4*a
print(f"The perimeter of a rhombus is {round(perimeter)} cm")
```

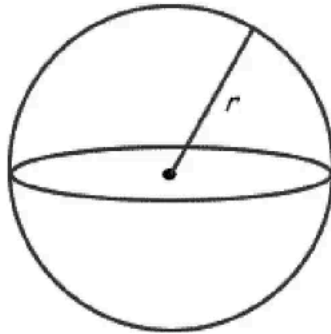
Enter side of a rhombus: 9
The perimeter of a rhombus is 36 cm

43. Python Program to Find the Volume and Surface Area of a Sphere

Sphere

Surface Area

$$A = 4 \pi r^2$$



Volume

$$V = \frac{4}{3} \pi r^3$$

```
#volume of sphere is >> 4/3 pi*r**3 and surface area is >> 4*pi*r**2
import math
r = float(input("Enter radius in cm: "))
volume = 4/3*(math.pi*r**3)
surface_area = 4*math.pi*r**2
print(f"The volume of sphere is {volume:.2f} cm**3 & surface area is {round(surface_area)} cm**2")
```

Enter radius in cm: 4
The volume of sphere is 268.08 cm**3 & surface area is 201 cm**2

44. Python Program to Find the Volume and Surface Area of a Cylinder

Cylinder

Surface Area

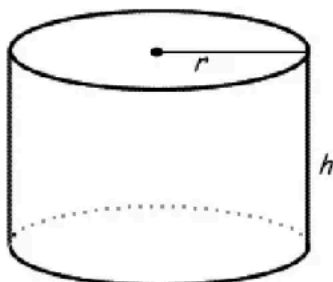
We will need to calculate the surface area of the top, base and sides.

Area of the top is πr^2

Area of the bottom is πr^2

Area of the side is $2\pi rh$

Therefore the Formula is: $A = 2\pi r^2 + 2\pi rh$



Volume

$$V = \pi r^2 h$$

```
#volume of cylinder is >> math.pi*r**2*h and surface area is >> 4*pi*r**2
import math
r,h = map(float, input("Enter radius & height in cm: ").split())
volume = math.pi*r**2*h
surface_area = 2*math.pi*r*(r + h)
print(f"The volume of cylinder is {volume:.2f} cm**3 & surface area is {round(surface_area)} cm**2")
```

Enter radius & height in cm: 6 3
The volume of sphere is 339.29 cm**3 & surface area is 339 cm**2

45. Python Program to Find the Volume and Surface Area of a Cube

```
a = float(input("Enter side length in cm: "))
volume = a**3
surface_area = 6*a**2
print(f"The volume and surface area of cube is {volume:.2f} cm**3, {surface_area:.2f} cm**2 respectively.")
```

Enter side length in cm: 5
The volume and surface area of cube is 125.00 cm**3, 150.00 cm**2 respectively.

46. Python Program to Find the Volume and Surface Area of a Cone

Cone

Surface Area

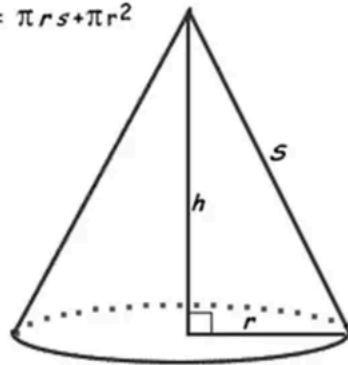
We will need to calculate the surface area of the cone and the base.

Area of the cone is $\pi r s$

Area of the base is πr^2

Therefore the Formula is:

$$SA = \pi r s + \pi r^2$$



Volume

$$V = \frac{1}{3} \pi r^2 h$$

```
# volume = (1/3)*math.pi*r**2*h and surface area = math.pi*r*(r+slant_height)
import math
h,r = map(float, input("Enter height and radius of cone: ").split())
volume = (1/3)*math.pi*r**2*h
slant_height = math.sqrt(r**2 + h**2)
surface_area = math.pi*r*(r + slant_height)
print(f"The volume and surface area of a cone is {volume:.2f} cm**3 and {surface_area:.2f} cm**2 respectively.")
```

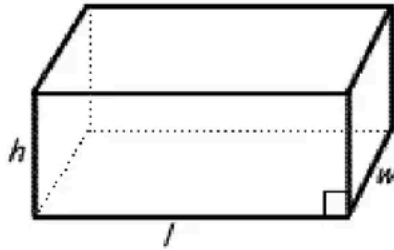
Enter height and radius of cone: 6 5
The volume and surface area of a cone is 157.08 cm**3 and 201.22 cm**2 respectively.

47. Python Program to Find the Volume and Surface Area of a Cuboid

Rectangular Prism

Surface Area

$$A = 2 (wh + lw + lh)$$



Volume

$$V = lwh$$

```
#volume = l*w*h & surface_area = 2*(l*w + l*h + w*h)
l,w,h = map(float, input('Enter length, width & height in cm: ').split())
volume = l*w*h
surface_area = 2*(l*w + l*h + w*h)
print(f"The volume and surface area of an cuboid is {volume:.2f} cm**3 & {surface_area:.2f} cm**2 respectively.")
```

Enter length, width & height in cm: 4 5 6
The volume and surface area of an cuboid is 120.00 cm**3 & 148.00 cm**2 respectively.

✓ Circle Sector

Sector

Area

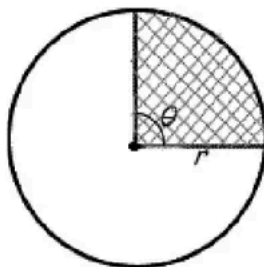
The area of a sector of a circle can be calculated by degrees or radians. $(\frac{\pi}{2} \text{ radians} = 90^\circ)$

A: Area r
r: radius r
 θ : central angle

Formula

$$\frac{\theta}{2} r^2 \text{ (in radians)}$$

$$\frac{\theta}{360} \pi r^2 \text{ (in degrees)}$$

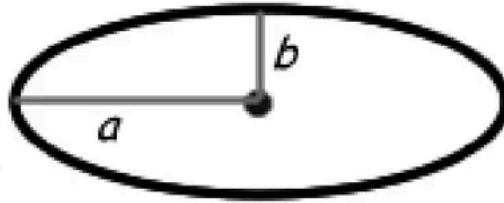


Sector is the shaded area

✓ Elips

Ellipse

Surface Area = πab



✓ Prism

Isosceles Triangular Prism

Surface Area $A = bh + 2ls + lb$

