

**Program-4: 3D shapes- Area and volume**

```
import java.util.*;
class conics
{
    public static void main(String args[])
    {
        Scanner ob = new Scanner(System.in);
        int r,h,ch,ct=1;
        double A,V,pi=3.14159;
        while(ct!=0)
        {
            System.out.println("Enter the values of radius and height of the 3D shape
you want to find the Area and Volume");
            r = ob.nextInt();
            h = ob.nextInt();
            System.out.println("Enter your choice");
            System.out.println("1. Cylinder");
            System.out.println("2. Cone");
            System.out.println("3. Sphere");
            ch = ob.nextInt();

            switch(ch)
            {
                case 1:
                {
                    A = 2*pi*r*h + 2*pi*r*r;
                    V = pi*r*r*h;
                    System.out.println("Area of the cylinder: "+A+" sq.unit");
                    System.out.println("Volume: "+V+" cubic unit");
                    break;
                }
                case 2:
                {
                    A = pi*r*(r + Math.sqrt(h*h + r*r));
                    V = (pi*r*r*h)/3.0;
                    System.out.println("Area of Cone: "+A+" sq.unit");
                    System.out.println("Volume: "+V+" cubic unit");
                    break;
                }
                case 3:
                {
                    A = 4*pi*r*r;
                    V = (4*pi*r*r*r)/3.0;
                    System.out.println("Area of Sphere: "+A+" sq.unit");
                    System.out.println("Volume: "+V+" cubic unit");
                    break;
                }
                default: System.out.println("Wrong choice!!");
            }
            System.out.println("Please enter any number to find values of other shapes,
to terminate enter zero 0");
            ct = ob.nextInt();
        }
    }
}
```

OUTPUT:

```
(base) Kirans-MacBook-Air:~ kiranmk$ ./foiders/10000gn/7/geany_idn-001pt-rem.R0.sh ; exit;
Enter the values of radius and height of the 3D shape you want to find the Area and Volume
10
10
Enter your choice
1. Cylinder
2. Cone
3. Sphere
3
Area of Sphere: 1256.636 sq.unit
Volume: 4188.786666666667 cubic unit
Please enter any number to find values of other shapes, to terminate enter zero 0
1
Enter the values of radius and height of the 3D shape you want to find the Area and Volume
10
10
Enter your choice
1. Cylinder
2. Cone
3. Sphere
2
Area of Cone: 758.4469185415692 sq.unit
Volume: 1047.1966666666667 cubic unit
Please enter any number to find values of other shapes, to terminate enter zero 0
4
Enter the values of radius and height of the 3D shape you want to find the Area and Volume
10
10
Enter your choice
1. Cylinder
2. Cone
3. Sphere
1
Area of the cylinder: 1256.636 sq.unit
Volume: 3141.59 cubic unit
Please enter any number to find values of other shapes, to terminate enter zero 0
0

-----
(program exited with code: 0)
Press return to continue
```