```java
import java.util.*;
abstract class Shape
{
    int a,b;
    abstract public void printArea();
    void assign_twovar(int x,int y)
    {
        a=x;
        b=y;
    }
    void assign_onevar(int x)
    {
        a=x;
    }
}
class Rectangle extends Shape
{
    public void printArea()
    {

        System.out.println("The area of rectangle is "+(a*b)+"cm sq");
    }
}
class Triangle extends Shape
{
    public void printArea()
    {
        System.out.println("The area of triangle is "+(0.5*a*b)+"cm sq");
    }
}
class Circle extends Shape
{
    public void printArea()
    {
        System.out.println("The area of circle is "+(3.14*a*a)+"cm sq");
    }
}
```

```java
class Main
{
    public static void main(String args[])
    {
        Scanner sc=new Scanner(System.in);
        int c,dim1,dim2;
        while(true)
        {
            System.out.println("Enter 1 to find area of rectangle.\nEnter 2 to find area of triangle.\nEnter 3 to find area of circle.\nEnter 4 to exit!");
            c=sc.nextInt();
            switch(c)
            {
                case 1:
                    Rectangle rec=new Rectangle();
                    System.out.println("Enter the length and breadth of rectangle in cm:");
                    dim1=sc.nextInt();
                    dim2=sc.nextInt();
                    rec.assign_twovar(dim1,dim2);
                    rec.printArea();
                    break;

                case 2:
                    Triangle tri=new Triangle();
                    System.out.println("Enter the length and height of triangle in cm:");
                    dim1=sc.nextInt();
                    dim2=sc.nextInt();
                    tri.assign_twovar(dim1,dim2);
                    tri.printArea();
                    break;

                case 3:
                    Circle cir=new Circle();
                    System.out.println("Enter the radius of circle in cm:");
                    dim1=sc.nextInt();
                    cir.assign_onevar(dim1);
                    cir.printArea();
                    break;

                case 4:
                    System.exit(0);

                default:
                System.out.println("You have entered a wrong choice!");

            }
        }
    }
}
```

```
C:\Users\bmsce\Documents\USN_113_java>javac LabProg4.java

C:\Users\bmsce\Documents\USN_113_java>java Main
Enter 1 to find area of rectangle.
Enter 2 to find area of triangle.
Enter 3 to find area of circle.
Enter 4 to exit!
1
Enter the length and breadth of rectangle in cm:
2
4
The area of rectangle is 8cm sq
Enter 1 to find area of rectangle.
Enter 2 to find area of triangle.
Enter 3 to find area of circle.
Enter 4 to exit!
2
Enter the length and height of triangle in cm:
4
5
The area of triangle is 10.0cm sq
Enter 1 to find area of rectangle.
Enter 2 to find area of triangle.
Enter 3 to find area of circle.
Enter 4 to exit!
3
Enter the radius of circle in cm:
4
The area of circle is 50.24cm sq
Enter 1 to find area of rectangle.
Enter 2 to find area of triangle.
Enter 3 to find area of circle.
Enter 4 to exit!
4

C:\Users\bmsce\Documents\USN_113_java>
```