

```

1  import java.util.Scanner;
2
3  abstract class Shape{
4      int base,height;
5      Shape(int a,int b){
6          base = a;
7          height = b;
8      }
9      Shape(int c){
10         base = c;
11         height = c;
12     }
13     abstract void printArea();
14 }
15
16 class Rectangle extends Shape{
17     Rectangle(int a,int b){
18         super(a,b);
19     }
20     void printArea(){
21         System.out.print("area of rectangle: " + (base*height));
22     }
23 }
24 class Triangle extends Shape{
25     Triangle(int a,int b){
26         super(a,b);
27     }
28     void printArea(){
29         System.out.print("area of triangle: " + (base*height/2));
30     }
31 }
32 class circle extends Shape{
33     circle(int a){
34         super(a);
35     }
36     void printArea(){
37         System.out.print("area of circle: " + (3.14*base*base));
38     }
39 }
40
41 class ShapeDemo{
42     public static void main(String args[]){

```

```

43         Scanner sc = new Scanner(System.in);
44         int b,h,choice;
45         while(true){
46             System.out.print("\nEnter choice 1.Rectangle 2.triangle 3.circle 4.exit: ");
47             choice = sc.nextInt();
48
49             switch(choice){
50                 case 1: System.out.print("Enter base: ");
51                     b = sc.nextInt();
52                     System.out.print("Enter height: ");
53                     h = sc.nextInt();
54                     Rectangle r = new Rectangle(b,h);
55                     r.printArea();
56                     break;
57
58                 case 2: System.out.print("Enter base: ");
59                     b = sc.nextInt();
60                     System.out.print("Enter height: ");
61                     h = sc.nextInt();
62                     Triangle t = new Triangle(b,h);
63                     t.printArea();
64                     break;
65
66                 case 3: System.out.print("Enter radius: ");
67                     b = sc.nextInt();
68                     circle ci = new circle(b);
69                     ci.printArea();
70                     break;
71
72                 case 4: System.exit(0);
73             }
74         }
75     }
76 }

```

Observation:

```
C:\Users\Madhusudhan\Desktop\JavaProgs>Javac ShapeDemo.java

C:\Users\Madhusudhan\Desktop\JavaProgs>java ShapeDemo

Enter choice 1.Rectangle 2.triangle 3.circle 4.exit: 1
Enter base: 4
Enter height: 6
area of rectangle: 24
Enter choice 1.Rectangle 2.triangle 3.circle 4.exit: 2
Enter base: 2
Enter height: 3
area of triangle: 3
Enter choice 1.Rectangle 2.triangle 3.circle 4.exit: 3
Enter radius: 14
area of circle: 615.44
Enter choice 1.Rectangle 2.triangle 3.circle 4.exit: 4
```