

```
import java.util.Scanner;

abstract class Shape
{
    protected int xDimension;
    protected int yDimension;

    Shape() {}
    Shape(int x, int y)
    {
        xDimension=x;
        yDimension=y;
    }

    abstract public void printArea();
}

class Rectangle extends Shape
{
    Rectangle(int x, int y){super(x,y);}

    public void printArea(){System.out.println("Area is: "+(xDimension*yDimension));}
}

class Circle extends Shape
{
    Circle() {}
    Circle(int x){
        super(x,x);
    }

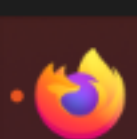
    public void printArea(){System.out.println("Area is: "+(Math.PI*xDimension*yDimension));}
}

class Triangle extends Shape
{
    Triangle(int x, int y){super(x,y);}

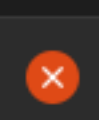
    public void printArea(){System.out.println("Area is: "+(0.5*xDimension*yDimension));}
}

class Main
{
    public static void main(String args[])
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("1. Rectangle\n2. Triangle\n3. Circle\n0. Exit");
        Shape s;
        loop:
        while(true)
        {
            System.out.print("Enter choice:");
            int choice=sc.nextInt();
            switch(choice)
            {
                case 1: System.out.print("Enter dimensions of rectangle:");
                    int x=sc.nextInt();
                    int y=sc.nextInt();
                    s=new Rectangle(x,y);
                    s.printArea();
                    break;
                case 2: System.out.print("Enter dimensions of triangle:");
                    int a=sc.nextInt();
                    int b=sc.nextInt();
                    s=new Triangle(a,b);
                    s.printArea();
            }
        }
    }
}
```

```
        break;
    case 3: System.out.print("Enter dimensions of circle:");
        int ch=sc.nextInt();
        s=new Circle(ch);
        s.printArea();
        break;
    case 0: break loop;
    default: continue loop;
    }
    sc.nextLine();
}
System.out.println("Exiting...");
sc.close();
}
}
```



bmsce@bmsce-OptiPlex-3060: ~/1BM23CS313/1BM23CS313-Java/Lab-Prg-4



```
bmsce@bmsce-OptiPlex-3060:~/IBM23CS313/IBM23CS313-Java/Lab-Prg-4$ java Main
```

1. Rectangle

2. Triangle

3. Circle

0. Exit

Enter choice:1

```
Enter dimensions of rectangle:2 3
```

Area is:6

Enter choice:2

```
Enter dimensions of triangle:2 3
```

Area is:3.0

Enter choice:3

Enter dimensions of circle:5

Area is:78.53981633974483

```
Enter choice:0
```

Exiting...

```
bmsce@bmsce-OptiPlex-3060:~/1BM23CS313/1BM23CS313-Java/Lab-Prg-4$
```

