

**Aim:**

Write a java program to create a super class called Figure that receives the dimensions of two dimensional objects. It also defines a method called area that computes the area of an object. The program derives two sub-classes from Figure. The first is Rectangle and second is Triangle. Each of the sub classes override area() so that it returns the area of a rectangle and triangle respectively

**Source Code:****AbstractAreas.java**

```
import java.util.*;
abstract class Figure{
    double dim1;
    double dim2;
    double dim3;
    double dim4;
    Figure(double a,double b){
        dim1=a;
        dim2=b;
        dim3=a;
        dim4=b;
    }
    abstract void area();
}
class Rectangle extends Figure{
    Rectangle(double a,double b)
    {
        super(a,b);
    }
    void area(){
        double Area=dim1*dim2;
        System.out.println("Rectangle:");
        System.out.println("Area is "+Area);
    }
}
class Triangle extends Figure{
    Triangle(double a,double b)
    {
        super(a,b);
    }
    void area(){
        double Area=(dim3*dim4)/2;
        System.out.println("Triangle:");
        System.out.println("Area is "+Area);
    }
}
class AbstractAreas{
    public static void main(String args[]){
        System.out.println("Enter lenght and breadth of Rectangle :");
        Scanner input = new Scanner(System.in);
        double dim1=input.nextDouble();
        double dim2=input.nextDouble();
```

```

        System.out.println("Enter height and side of Triangle :");
        Scanner input1=new Scanner(System.in);
        double dim3=input.nextDouble();
        double dim4=input.nextDouble();
        Rectangle r=new Rectangle(dim1,dim2);
        Triangle t=new Triangle(dim3,dim4);
        Figure figuref;
        figuref=r;
        figuref.area();
        figuref=t;
        figuref.area();
    }
}

```

### Execution Results - All test cases have succeeded!

| Test Case - 1                              |
|--|
| User Output                                |
| Enter lenght and breadth of Rectangle : 12 |
| 14   |
| Enter height and side of Triangle : 7      |
| 5  |
| Rectangle:                                 |
| Area is 168.0                              |
| Triangle:                                  |
| Area is 17.5                               |

| Test Case - 2                             |
|---|
| User Output                               |
| Enter lenght and breadth of Rectangle : 4 |
| 8   |
| Enter height and side of Triangle : 5     |
| 3   |
| Rectangle:                                |
| Area is 32.0                              |
| Triangle:                                 |
| Area is 7.5                               |