Develop a Java program to create an abstract class to find the area of Rectangle, Triangle and circle.

```
import java.util.Scanner;
abstract class Shape{
    int a, b;
    abstract void printArea();
}
class Rectangle extends Shape{
    Rectangle(int l, int br){
        a = l;
        b = br;
    }
```

```
    public void printArea(){
        System.out.println("Area of Rectangle = "+l*b);
    }
}

class Triangle extends Shape{
    Triangle(int ba, int h){
        a = ba;
        b = h;
    }
    public void printArea(){
        System.out.println("Area of t
        double area = 0.5 * a * b;
        System.out.println("Area of Triangle "+
                area);
    }
}

class Circle extends Shape {
    Circle(int r){
        double area = 3.14 * r
        a = r
    }
    public void printArea(){
        double area = 3.14 * r * r;
        System.out.println("Area of the Circle "
            + area);
    }
}

class Main{
    public static void main(String[] args){
        Scanner in = new Scanner(System.in);
        System.out.println("Enter the
            sides of a Rectangle");
        Rectangle rec = new Rectangle
                (in.nextInt(), in.nextInt
        rec.printArea();
        System.out.println("Enter the base
            and height of a triangle");
        Triangle tri = new Triangle
                (in.nextInt(), in.nextInt()
        tri.printArea();
```

```
        System.out.println("Enter the radius
                of a circle ");
        Circle cir = new Circle(in.nextInt());
        cir.printArea();
    }
}
```

Algorithm:

Step 1: Start

Step 2: ~~Init~~ Create Abstract class Shape in which initialize variable a & b.

Step 3: Call for printArea() function in abstract class

Step 4: Enter length & breadth of a rectangle (l, br) under class Rectangle extends Shape;

Print "Area of rectangle " + l * br.

Step 5: Read base(ba) and height(h) of a triangle under class ~~Triangle~~ extends Shape

a = ba b = h

Print "Area of ~~triangle~~ Triangle: " + (0.5 * b * h)

Step 6: Read radius (r) of a circle under class Circle ~~of~~ extends Shape

a = r

Print "Area of circle = " + (3.14 * r * r

Step 7: Stop.

Output:

Enter the length and breadth of a rectangle:

3 4

Area of rectangle: 12.0

Enter the base and height of a triangle:

4 10

Area of Triangle = 20.0

Enter the radius of circle.

7

Area of circle = 153.86

12/01/24

```
Microsoft Windows [Version 10.0.22621.2715]
(c) Microsoft Corporation. All rights reserved.

D:\java\oops>javac E.java

D:\java\oops>java E
Name: Aditya Dinesh Netrakar
USN: 1BM22CS017
Enter length and breadth of a rectangle:
3 4
Area of rectangle: 12
Enter base and height of a triangle:
4 10
Area of the triangle: 20.0
Enter the radius of a circle:
7
Area of Circle: 153.86
```