LAB program 4 :

Q. Develop a java program to create an abstract class named shape that contains two integers and an empty method named printArea(), Provide three classes named rectangle, triangle, circle such that each one of those classes extends the class shape. Each one of the classes contain only the method printArea() that prints the area of the given shape.

```java
import java.util.scanner;
abstract class shape {
    int dim 1, dim 2;
    abstract void printArea();
}

class Rectangle extends shape {
    public Rectangle(int l, int w) {
        this.dim 1 = l;
        this.dim 2 = w;
    }
    void printArea() {
        int area = dim1 * dim2;
        System.out.println ("Rectangle
        area = " + area);
    }
}
```

```java
class Triangle extends shape {
    public Triangle (int b, int h) {
        this.dim 1 = b;
        this.dim 2 = h;
    }

    void printArea() {
        float area = 0.5 * dim 1 * dim 2;
        System.out.println ("Triangle area = "+
        area);
    }
}

class circle extends shape {
    private fin
    public circle (int r) {
        this.dim 1 = r;
    }

    void printArea() {
        float area = Math.pi * dim 1 * dim 1;
        System.out.println (" circle area:"
        + area);
    }
}
```

```
public class Main{
    public static void main (String[] ar
        Scanner sc = new Scanner (System.i
        System.out.println ("Enter for a rectan
        length :");
        int length = sc.nextInt();
        System.out.println("Enter for rectang
        width :");
        int width = sc.nextInt();
        rectangle.printArea()
        System.out.println ("Enter triangl
        base and height:");
        int base = sc.nextInt();
        int height = sc.nextInt();
        Triangle triangle = new Triangle (b,h);
        triangle.printArea();
        S.O.P ("Enter radius of circle" );
        int radius = sc.nextInt();
        Circle circle = new circle (radius);
        circle.printArea();
    }
}
```

Output :

Enter length of rectangle = 10
Enter width of rectange = 5
Rectangle area = 5.0
Enter area of base = 8
Enter height of triangle = 5
Triangle area = 20.0
Enter radius of circle = 10
Circle area = 314.19

O/p