

```
import java.util.Scanner;

abstract class Shape {
    int dim1;
    int dim2;

    public Shape() {
        this.dim1 = 0;
        this.dim2 = 0;
    }

    public Shape(int dim1, int dim2) {
        this.dim1 = dim1;
        this.dim2 = dim2;
    }

    public abstract void printArea();
}

class Rectangle extends Shape {
    public Rectangle(int length, int width) {
        dim1 = length;
        dim2 = width;
    }

    public void printArea() {

        int area = dim1 * dim2;
        System.out.println("Area of Rectangle: " + area);
    }
}

class Triangle extends Shape {
    public Triangle(int base, int height) {
        dim1 = base;
        dim2 = height;
    }

    public void printArea() {

        double area = 0.5 * dim1 * dim2;
        System.out.println("Area of Triangle: " + area);
    }
}
```

```
class Circle extends Shape {
    public Circle(int radius) {

        dim1 = radius;
        dim2 = 0;
    }

    public void printArea() {

        double area = Math.PI * dim1 * dim1;
        System.out.println("Area of Circle: " + area);
    }
}

public class shapes {

    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);

        System.out.println("Enter length and width for Rectangle:");

        int length = in.nextInt();
        int width = in.nextInt();
        Shape rectangle = new Rectangle(length, width);
        rectangle.printArea();

        System.out.println("Enter base and height for Triangle:");

        int base = in.nextInt();
        int height = in.nextInt();
        Shape triangle = new Triangle(base, height);
        triangle.printArea();

        System.out.println("Enter radius for Circle:");

        int radius = in.nextInt();
        Shape circle = new Circle(radius);
        circle.printArea();

        in.close();
    }
}
```

Enter length and width for Rectangle:

12

16

Area of Rectangle: 192

Enter base and height for Triangle:

12

6

Area of Triangle: 36.0

Enter radius for Circle:

36

Area of Circle: 4071.5040790523717

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