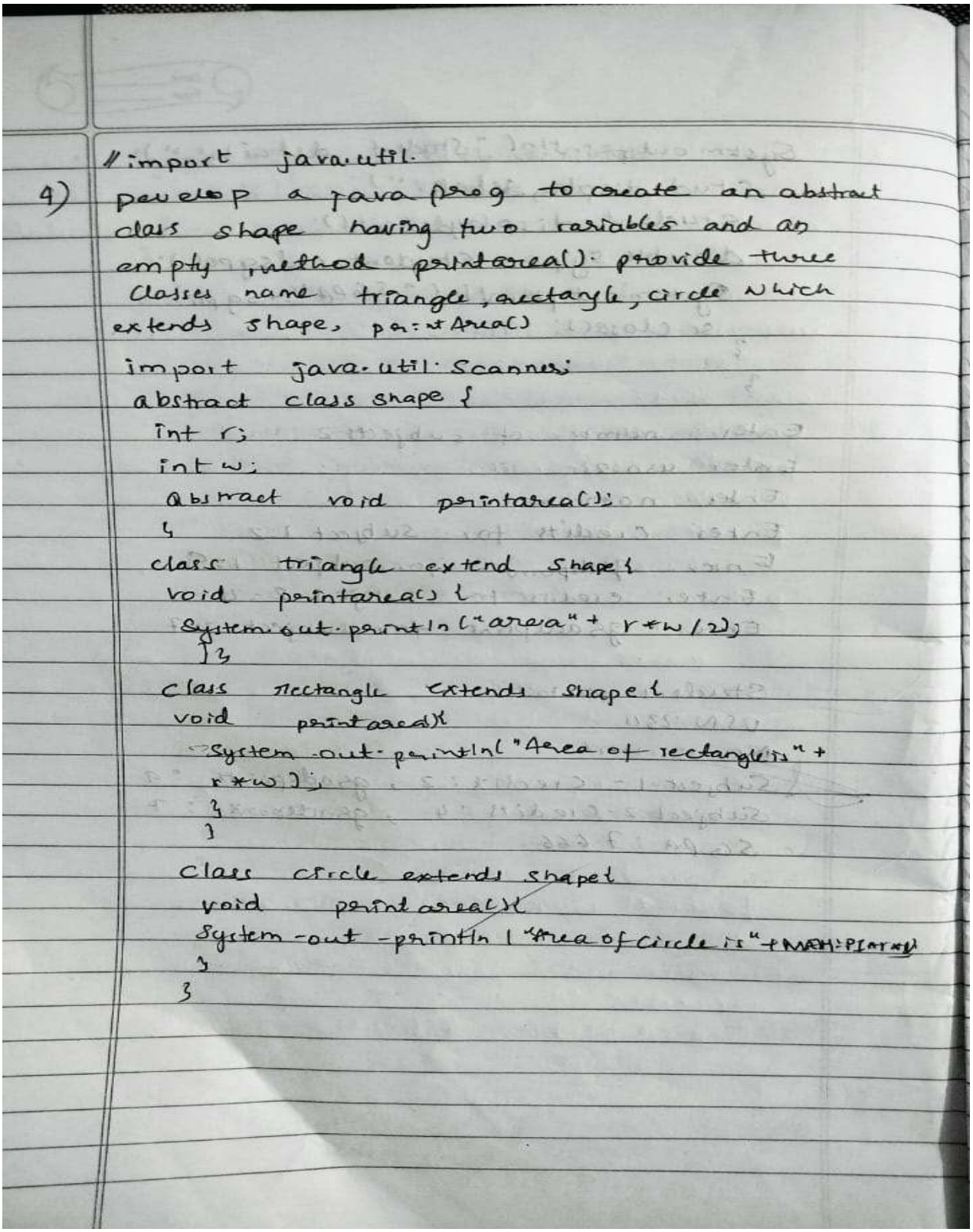
4)Develop a Java program to create an abstract class named Shape that contains two integers and an empty method named printArea(). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contain only the method printArea() that prints the area of the given shape.



```
// import java.util.
4) develop a java prog to create an abstract
class shape having two variables and an
empty method printarea(). provide three
classes name triangle, rectangle, circle which
extends shape, print Area()

import java.util.Scanner;
abstract class shape {
 int r;
 int w;
 Abstract void printarea();
}
class triangle extend shape {
 void printarea() {
  System.out.println("area" + r*w/2);
 }}
class rectangle extends shape {
 void printarea()
  System.out.println("Area of rectangle is" +
  r*w);
 }
}

class circle extends shape{
 void printarea(){
 System.out.println("Area of circle is" + MATH.PI*r*r)
 }
}
```

```
Public class Mainshape{
  public static void main(String args[]){
  Scanner sx = new Scanner(System.in);
  triangle t1 = new triangle();
  System.out.println("Enter sides of triangle");
  t1.r=sx.nextInt();
  t1.w=sx.nextInt();
  t1.printarea();
  rectangle r1 = new rectangle();
  System.out.println("Enter sides of rectangle");
  r1.r=sx.nextInt();    r1.w= sx.nextInt();
  r1.printarea();
  circle c1 = new circle();
  System.out.println("Enter radius");
  c1.r=sx.nextInt();
  c1.printarea();
  sx.close();
  }
}
```

Ente sides of triangle
3 4
area 6
Enter sides of rectangle
area of rect is12
Enter radius of circle
3
Area of circle is 28.2599

```
import java.util.Scanner;
abstract class Shape{
   int r; int w;
   abstract void printarea();
}
class triangle extends  Shape{

   void printarea(){
      System.out.println("AREA OF TRIANGLE ="+ r*w/2);
   }}

class rectangle extends Shape{
void printarea(){
   System.out.println("AREA OF RECTANGLE =" + r*w);
}}
class circle extends Shape{
   void printarea(){
      System.out.println("AREA OF CIRCLE IS = "+ 3.14*r*r);
   }

}
public class mainshape{
   public static void main(String args[]){
      Scanner sx=new Scanner(System.in);
      triangle t1= new triangle();
      System.out.println("ENTER HEIGHT AND BASE  OF TRIANGLE");
      t1.r=sx.nextInt(); t1.w=sx.nextInt();
      t1.printarea();
```

```
        rectangle r1=new rectangle();
        System.out.println("ENTER SIDES OF RECTANGLE IE LENGTH BREADTH");
        r1.r=sx.nextInt(); r1.w=sx.nextInt();


        r1.printarea();


        circle c1=new circle();
        System.out.println("ENTER RADIUS OF CIRCLE");
        c1.r=sx.nextInt(); //r1.w=sx.nextInt();
        c1.printarea();
        sx.close();



    }
}
```

output

```
C:\Users\hp\Desktop\java>javac mainshape.java

C:\Users\hp\Desktop\java>java mainshape
ENTER HEIGHT AND BASE  OF TRIANGLE
3
4
AREA OF TRIANGLE =6
ENTER SIDES OF RECTANGLE IE LENGTH BREADTH
3 4
AREA OF RECTANGLE =12
ENTER RADIUS OF CIRCLE
4
AREA OF CIRCLE IS = 50.24

C:\Users\hp\Desktop\java>
```