```
public abstract class Polygon
{
    private int sides;
    private String  type;

    public Polygon()
    {
        sides = 3;
        type = "Triangle";
    }

      public Polygon(int mySides, String myType )
    {
        sides = mySides;
        type = myType;
    }

    public int getSides()
    {

        return sides;
    }

      public String getType()
    {

        return type;
    }

    public String toString()
    {
        return "\nPOLYGON: " + getType() + "\tSIDES: " + getSides()+
                        "\nPERIMETER: " + getPerimeter() + "\tAREA: " +
getArea();
    }
//    public void doubleWidth() {
//         System.out.println("not all polygons have a true width");
//    }

     public void setType(String newType)
    {
        type = newType;
    }
    abstract double getPerimeter();
    abstract double getArea();
//    public void doubleWidth(){}



    public static void main (String []args)
```

```
    {
//     Polygon a = new Polygon(4,"rectangle");
//      System.out.println(a);
    }
}
```

```
public class PolygonTester {
     public static void main(String[] args) {
//          Polygon z = new Polygon(10, "Decagon");
//          Polygon zz;


          RightTriangle a = new RightTriangle(3, 4);
          System.out.println(a);

//          Polygon bubble = new Rectangle(2,2);
//          System.out.println(bubble.toString());
//          bubble.doubleWidth();

          Rectangle b = new Rectangle(1, 1);
          System.out.println(b.toString());
          b.doubleWidth();

          Square c = new Square(5);
          System.out.println(c);

//           5 sided regular polygon
          RegularNgon d = new RegularNgon(5, 8);
          System.out.println(d);
//
          Polygon[] shapes = new Polygon[4];
          shapes[0] = a;
          shapes[1] = b;
          shapes[2] = c;
          shapes[3] = d;
//
          double tot = 0;
//
          System.out.println(b.getArea());
          for (Polygon x : shapes) {
```

```
                System.out.println("TYPE: " + x.getType() + " AREA: " +
x.getArea());
                tot += x.getArea();
            }
            System.out.println("Total Area: " + tot);
        }
}
```