

```
import java.awt.*;
public class PolygonDriver
{
    public static void main( String args[] )
    {
        Color RED = Color.red, BLUE = Color.blue, BLACK = Color.black,
            GRAY = Color.gray, YELLOW = Color.yellow, PINK = Color.pink,
            ORANGE = Color.orange, GREEN = Color.green,
            MAGENTA = Color.magenta, WHITE = Color.white;
        GraphicPolygon gPoly = new GraphicPolygon(4, 200, GREEN);
        gPoly.draw();
        System.out.print( gPoly );
    }
}

public class RegularPolygon
{
    private double myNumSides;    // # of sides
    private double mySideLength; // length of side
    private double myR;          // radius of circumscribed circle
    private double myr;          // radius of inscribed circle

    //Default Constructor for the RegularPolygon object
    //Constructs a triangle
    public RegularPolygon()
    {
        myNumSides = 3;
        mySideLength = 1;
        getR();
        getr();
    }

    //Constructs a regular polygon with numSides sides
    //with sideLength length.
    public RegularPolygon(int numSides, double sideLength)
    {
        myNumSides = (double)numSides;
        mySideLength = sideLength;
        getR();
        getr();
    }

    //Gets the numside attribute of the RegularPolygon object
    public int getNumside()
    { return (int)myNumSides; }

    //returns the mySideLength attribute of the RegularPolygon object
    public double getSideLength()
    { ? }

    //Calculates and returns the vertex angle
    public double getVertexAngle()
    { ? }
```

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//Calculates and returns the number of diagonals in this polygon
public int numDiagonals()
{ ? }

//Calculates and returns the perimeter of the polygon
public double getPerimeter()
{ ? }

//Calculates and returns the area of the polygon
public double getArea()
{ ? }

//Calculates and returns the radius of the inscribed circle
public double getr()
{ ? }

//Calculates and returns the radius of the circumscribed circle
private double getR()
{ ? }

public String toString()
{ ? }

//returns the name of the polygon
public String getName()
{ ? }
}

import java.awt.*;
import gpdraw.*;

public class GraphicPolygon extends RegularPolygon
{
    private DrawingTool pen = new DrawingTool(new SketchPad(800,800));
    private double xPosition, yPosition;
    Color color;

    //use super to call the RegularPolygo constructor
    public GraphicPolygon(int numSides, double sideLength, Color c)
    { ? }

    //Draw the polygon
    public void draw()
    { ? }

    //Recursively draw each side
    private void drawSides(int n)
    { ? }

    public String toString()
    { return super.toString(); }
}

```

## OUTPUT

Name	# of sides	side length	interior angle	perimeter	area
hexagon	6	200.00	120.00	1200.00	103923.05

