Polygon.java

Overview

The Polygon class represents a polygonal layer. A Polygon object is defined by its number of sides, the length of its radius, and its center coordinates. A Polygon object is created in the GcodeWriter class where it is manipulated as GcodeWriter builds a printed solid layer by layer. Frequently used manipulation methods are scaling and rotating.

Variables	Description
ArrayList<double[]> vertices	A list of vertices' x-y coordinates
private double sideLength	Side Length in millimeters
private double radius	Distance from center to a vertex
private double centerX	Center's x-coordinate
private double centerY	Center's y-coordinate
private double twistAngle	Radian angle between the rightmost radius axis and the x-ais
private int sides	Number of sides

Methods	Descriptions
Polygon( )	Default constructor creates a 1mm-radiustriangle centered at origin
Polygon(Polygon p)	Copy Constructor
Polygon(int i , double r)	Creates a Polygon with i sides and radius r, centers at origin
scale(double s)	Scale uniformly by s
rotate(double r)	Rotate about polygon's center by r radian
translate(double x, double y)	Translate in x-y direction
getSideLength()	Returns side length
getVertices()	Returns ArrayList<double[]>, list of vertices x-y coordinates
getCenter()	Returns double[], a pair of x-y coordinate
getSideCount()	Returns the number of sides, int
getRadius()	Returns radius, double
getAngle()	Returns twist angle, double