

```
1
2 // Sartaj Khan Problem Set 1 Part 2
3 #include "Polygon.h"
4
5 #include <cassert>
6
7
8
9 float Polygon::getSignedArea() const noexcept {
10     float aArea = 0;
11     for (size_t i = 0; i < fNumberOfVertices - 1; i++) {
12         aArea += 0.5f * (fVertices[i].y() + fVertices[i + 1].y()) * (fVertices
13             [i].x() - fVertices[i + 1].x());
14     }
15     aArea += 0.5f * (fVertices[fNumberOfVertices - 1].y() + fVertices[0].y()) *
16         (fVertices[fNumberOfVertices - 1].x() - fVertices[0].x());
17     return aArea;
18 }
19
20 Polygon Polygon::transform(const Matrix3x3& aMatrix) const noexcept {
21     Polygon Result = *this;
22     for (size_t i = 0; i < fNumberOfVertices; i++) {
23         Result.fVertices[i] = static_cast<Vector2D>(aMatrix * Vector3D
24             (Result.fVertices[i]));
25     }
26     return Result;
27 }
```