

Gungnir's Standard Code Library

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Chapter 1 Computational Geometry

1.1 2D

1.1.1 Basis

```
1 typedef double DB;
2 const eps = 1e-8;
3
4 inline int sign(DB x) {
5     return x < -eps ? -1 : ( x > eps ? 1 : 0 );
6 }
7 inline DB msqrt(DB x) {
8     return sign(x) > 0 ? sqrt(x) : 0;
9 }
10
11 struct Point {
```

```
12 DB x, y;
13 inline Point(): x(0), y(0) {}
14 inline Point(DB x, DB y): x(x), y(y) {}
15 inline Point operator+(const Point &rhs) const {
16     return Point(x + rhs.x, y + rhs.y);
17 }
18 inline Point operator-(const Point &rhs) const {
19     return Point(x - rhs.x, y - rhs.y);
20 }
21 inline Point operator*(DB k) const {
22     return Point(x * k, y * k);
23 }
24 inline Point operator/(DB k) const {
25     assert(sign(k));
26     return Point(x / k, y / k);
27 }
28 };
29
30 inline DB dot(const P& a, const P& b) {
31     return a.x * b.x + a.y * b.y;
32 }
33
34 inline DB det(const P& a, const P& b) {
35     return a.x * b.y - a.y * b.x;
36 }
```