

```

1  #include <bits/stdc++.h>
2  using namespace std;
3  #define MOD (int)(1e9+7)
4  #define ll long long
5
6  Useful define:
7  #define pi 3.14159265358979323846
8
9  Points 2D Operation:
10 struct point2d {
11     double x, y;
12     point2d() {}
13     point2d(double x, double y): x(x), y(y) {}
14     point2d& operator+=(const point2d &t) {
15         x += t.x;
16         y += t.y;
17         return *this;
18     }
19     point2d& operator-=(const point2d &t) {
20         x -= t.x;
21         y -= t.y;
22         return *this;
23     }
24     point2d& operator*=(double t) {
25         x *= t;
26         y *= t;
27         return *this;
28     }
29     point2d& operator/=(double t) {
30         x /= t;
31         y /= t;
32         return *this;
33     }
34     point2d operator+(const point2d &t) const {
35         return point2d(*this) += t;
36     }
37     point2d operator-(const point2d &t) const {
38         return point2d(*this) -= t;
39     }
40     point2d operator*(double t) const {
41         return point2d(*this) *= t;
42     }
43     point2d operator/(double t) const {
44         return point2d(*this) /= t;
45     }
46 };
47 point2d operator*(double a, point2d b) {
48     return b * a;
49 }
50
51 //dot & cross product
52 double dot(point2d a, point2d b) {
53     return a.x * b.x + a.y * b.y;
54 }
55
56 double cross(point2d a, point2d b) {
57     return a.x * b.y - a.y * b.x;
58 }

```