

Contest Duration: 2025-05-10(Sat) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250510T2100&p1=248>) - 2025-05-10(Sat) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250510T2240&p1=248>) (local time) (100 minutes)

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F - Chord Crossing

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Time Limit: 3 sec / Memory Limit: 1024 MiB

Score : 525 points

Problem Statement

On a circle, $2N$ points are placed at equal intervals and numbered $1, 2, \dots, 2N$ in clockwise order starting from an arbitrary point.

There are M line segments numbered $1, 2, \dots, M$ connecting these points. Segment i connects points A_i and B_i . Here, A_i and B_i are distinct **even numbers**. It is guaranteed that no two of these segments share a point.

Process Q queries. The j -th query is as follows:

- You are given two distinct **odd numbers** C_j and D_j . Among the M segments $1, 2, \dots, M$, find how many share a point with the segment connecting points C_j and D_j .

Constraints

- $2 \leq N \leq 10^6$
- $1 \leq M \leq \min(\lfloor \frac{N}{2} \rfloor, 2 \times 10^5)$
- $1 \leq Q \leq 2 \times 10^5$
- $1 \leq A_i < B_i \leq 2N$
- $1 \leq C_j < D_j \leq 2N$
- A_i and B_i are even.
- C_j and D_j are odd.

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- For any i_1 and i_2 ($i_1 \neq i_2$), segments i_1 and i_2 do not share a point.
- All input values are integers.

Input

The input is given from Standard Input in the following format:

```

N  M
A1 B1
A2 B2
⋮
AM BM
Q
C1 D1
C2 D2
⋮
CQ DQ

```

Output

Output Q lines. The j -th line ($1 \leq j \leq Q$) should contain the answer to the j -th query.

Sample Input 1

Copy

```

4 2
2 4
6 8
3
1 3
3 7
1 5

```

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Sample Output 1

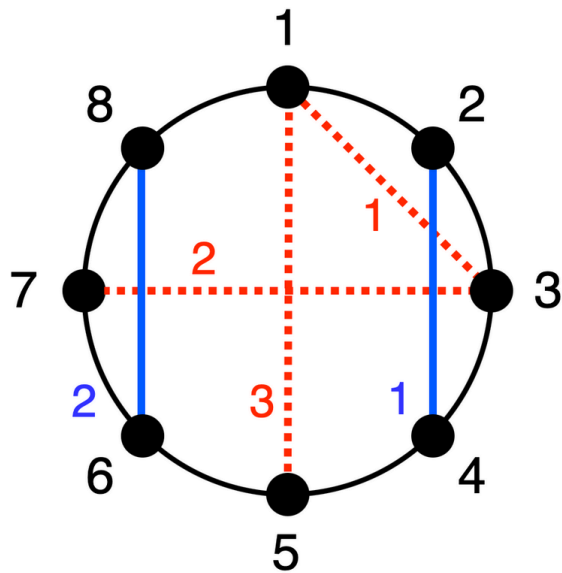
Copy

```

1
2
0

```

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The figure above illustrates Sample Input 1. Black dots are the $2N (= 8)$ points, blue solid lines are the initial $M (= 2)$ segments, and red dashed lines are the $Q (= 3)$ query segments.

- For the first query, the segment connecting points 1 and 3 intersects one initial segment: segment 1.
- For the second query, the segment connecting points 3 and 7 intersects two initial segments: segments 1 and 2.
- For the third query, the segment connecting points 1 and 5 intersects zero initial segments.

Sample Input 2

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```
20 7
24 34
26 28
18 38
2 14
8 12
30 32
20 22
10
7 29
31 39
9 21
19 29
15 21
11 39
17 21
15 31
5 25
25 31
```

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Sample Output 2

[Copy](#)

```
3
3
4
1
2
2
2
3
3
1
```

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