COI '06 #2 Policija

To help capture criminals on the run, the police are introducing a new computer system. The area covered by the police contains N cities and E bidirectional roads connecting them. The cities are labelled 1 to N.

The police often want to catch criminals trying to get from one city to another. Inspectors, looking at a map, try to determine where to set up barricades and roadblocks. The new computer system should answer the following two types of queries:

1. Consider two cities A and B, and a road connecting cities G_1 and G_2. Can the criminals **get from city A to city B if that one road is blocked** and the criminals can't use it?
2. Consider three cities A, B and C. Can the criminals **get from city A to city B if the entire city C is cut off** and the criminals can't enter that city?

Write a program that implements the described system.

Input Specification

The first line contains two integers N and E $(2 \leq N \leq 100\,000, 1 \leq E \leq 500\,000)$, the number of cities and roads.

Each of the following E lines contains two distinct integers between 1 and N – the labels of two cities connected by a road. There will be at most one road between any pair of cities.

The following line contains the integer Q $(1 \leq Q \leq 300\,000)$, the number of queries the system is being tested on.

Each of the following Q lines contains either four or five integers. The first of these integers is the type of the query – `1` or `2`.

If the query is of type 1, then the same line contains four more integers A, B, G_1 and G_2 as described earlier. A and B will be different. G_1 and G_2 will represent an existing road.

If the query is of type 2, then the same line contains three more integers A, B and C. A, B and C will be distinct integers.

The test data will be such that it is initially possible to get from each city to every other city.

Output Specification

Output the answers to all Q queries, one per line. The answer to a query can be `yes` or `no`.

Note: if your program correctly answers all questions of one type but not the other, it will receive 50% of the score for that case. Even then your program needs to answer all Q queries (the other queries can be answered arbitrarily).

Sample Input

```
13 15
1 2
2 3
3 5
2 4
4 6
2 6
1 4
1 7
7 8
7 9
7 10
8 11
8 12
9 12
12 13
5
1 5 13 1 2
1 6 2 1 4
1 13 6 7 8
2 13 6 7
2 13 6 8
```

Sample Output

```
yes
yes
yes
no
yes
```