# Rumors

A picture containing text, vector graphics

Description automatically generated

You are given a **network of n people**, labeled from 1 to n.

We will run a rumor from a given person x. Write a program that prints the **quickest time** it takes for each person in person x **network** to receive the rumor.

You can assume that the time for the rumor to spread between two people is 1.

## Input

* First, you will receive an integer – n – number of people in the network.
* After that, you will receive an integer – e – number of connections in the network.
* On the next e lines, you will receive all connections in the following format: "{person1} {person2}".
* On the last line, you will receive an integer – x – the person to run the rumor.

## Output

* Print the quickest time for each person in the person x network to hear the rumor in the following format: "{person x} -> {personi} (time)"
  + Order of the output doesn’t matter.

## Constraints

* n will be in the range [1… 30].
* e will be in the range [1… 50].
* Person connections (e) will always be in the range [1… n].
* x will always be in the range [1… n].

## Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 8  10  1 2  1 4  2 3  4 5  5 8  5 6  5 7  5 8  6 7  7 8  1 | 1 -> 2 (1)  1 -> 3 (2)  1 -> 4 (1)  1 -> 5 (2)  1 -> 6 (3)  1 -> 7 (3)  1 -> 8 (3) |
| 11  11  1 5  1 4  5 7  7 8  8 2  2 3  3 4  4 1  6 2  9 10  11 9  6 | 6 -> 1 (4)  6 -> 2 (1)  6 -> 3 (2)  6 -> 4 (3)  6 -> 5 (4)  6 -> 7 (3)  6 -> 8 (2) |