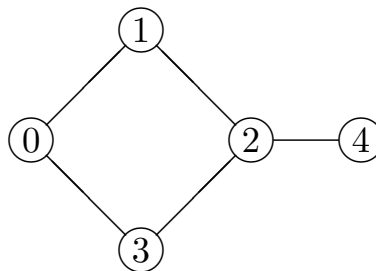


## Autoforward Virus

Facenger, the premier social networking site was always a favourite target of cyber-bandits and hackers. A notorious group of hackers, the Synonymous has finally managed to identify a weakness in the security protocols. They developed a virus that spreads from user to user, amplifying over time and eventually overloading the messaging servers.

Normally, users have to manually send messages to one another, but the security weakness now allows the hackers to create messages that automatically spawn and forward more messages, without intervention. Specifically, any time a user gets an infected message, it immediately forwards the infected message to all its friends in the social network. Infected messages act independently: if a user receives multiple messages at any point, it broadcasts that many messages to all of its friends. It takes exactly one second for each message to arrive after being sent. For example, consider the following network:



If user 0 sends a message to all of its friends at time  $T = 0$ , then

- at time  $T = 1$  users 1 and 3 get 1 messages each;
- at time  $T = 2$  users 0 and 2 get 2 messages each; and
- at time  $T = 3$ , users 1 and 3 get 4 messages each and user 4 gets 2 messages.

Given the list of friendship relations and the user who sends the initial message at  $T = 0$ , you need to determine the total number of messages received by the users of the social network at some given time  $T$ . In the above example the number of messages would be 2, 4 and 10 at times  $T = 1$ ,  $T = 2$  and  $T = 3$ , respectively.

## Input

The first line of the input contains four integers  $N$ ,  $M$ ,  $S$  and  $T$ , indicating the number of users ( $1 \leq N \leq 100$ ), the number of friendship relations between users ( $0 \leq M \leq \frac{N(N-1)}{2}$ ), the index of the user sending the initial message ( $0 \leq S < N$ ), and the number of seconds ( $0 < T < 10$ ).

Each of the following  $M$  lines contains two integers  $X$  and  $Y$  ( $0 \leq X < Y < N$ ), indicating that users  $X$  and  $Y$  are friends. Friendship relations are symmetric and distinct.

## Output

Output the number of messages sent at the specified time  $T$ .

Examples

input	output
4 3 1 4 0 1 1 2 2 3	8
5 5 0 3 0 1 0 3 1 2 2 3 2 4	10