Kirchhof Law

Input

Multiple test cases. For each test case:

The first line contains integers N and M; N is a number of nodes in the circuit (2 < N <= 100), M is the number of resistors (0 <= M <= 300). Each of the next M lines consists of three integers A_i, B_i and R_i — description of a resistor that has resistance R_i connecting the nodes A_i and B_i (1 <= A_i, B_i <= N; 1 <= R_i <= 100).

There's a blank line between consecutive test cases in the input file. No other extra whitespace will/should be appear in the input/output.

Input terminates by EOF.

Output

For each test case, output the total resistance between the nodes 1 and N rounded within two digits after a decimal points. There won't be any test case the output for which is +INF.

Example

Input:
4 5
1 2 15
2 4 5
1 3 10
3 4 10
2 3 1

Output:
9.40