Problem G. Sum of Distances in Cactus

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Find the sum of the distances between all pairs of vertices in a cactus graph. A cactus graph is a graph in which every edge belongs to at most one simple cycle. The distance between vertices is calculated as the number of edges in the shortest path connecting a given pair of vertices.

Input

First line contains two integers n and m — the number of vertices and the number of edges in the cactus.

Each of the following m lines contains two integers u_i v_i — the numeric labels of vertices connected by an edge.

It is guaranteed that the graph is connected and does not have self-loops and multiple edges.

$$1 \le n \le 10^5$$

$$n - 1 \le m \le 2 \times n$$

$$1 \le u_i, v_i \le n$$

Output

Output a single line containing the sum of the distances between all pairs of vertices.

Examples

standard input	standard output
3 3 1 2 2 3 3 1	3
7 8 2 1 3 1 5 1 3 2 4 3 5 7 6 3 4 6	42