E. Triangles

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Alice and Bob don't play games anymore. Now they study properties of all sorts of graphs together. Alice invented the following task: she takes a complete undirected graph with n vertices, chooses some m edges and keeps them. Bob gets the remaining edges.

Alice and Bob are fond of "triangles" in graphs, that is, cycles of length 3. That's why they wonder: what total number of triangles is there in the two graphs formed by Alice and Bob's edges, correspondingly?

Input

The first line contains two space-separated integers n and m ($1 \le n \le 10^6, 0 \le m \le 10^6$) — the number of vertices in the initial complete graph and the number of edges in Alice's graph, correspondingly. Then m lines follow: the i-th line contains two space-separated integers a_i, b_i ($1 \le a_i, b_i \le n, a_i \ne b_i$), — the numbers of the two vertices connected by the i-th edge in Alice's graph. It is guaranteed that Alice's graph contains no multiple edges and self-loops. It is guaranteed that the initial complete graph also contains no multiple edges and self-loops.

Consider the graph vertices to be indexed in some way from 1 to n.

Output

Print a single number — the total number of cycles of length 3 in Alice and Bob's graphs together.

Please, do not use the `%lld` specifier to read or write 64-bit integers in C++. It is advised to use the `cin`, `cout` streams or the `%I64d` specifier.

Examples

input
5 5 1 2 1 3 2 3 2 4 3 4

output
3

input
5 3 1 2 2 3 1 3

output
4

Note

In the first sample Alice has 2 triangles: (1, 2, 3) and (2, 3, 4). Bob's graph has only 1 triangle : (1, 4, 5). That's why the two graphs in total contain 3 triangles.

In the second sample Alice's graph has only one triangle: (1, 2, 3). Bob's graph has three triangles: (1, 4, 5), (2, 4, 5) and (3, 4, 5). In this case the answer to the problem is 4.