

Counting paths in a complete graph

[English](#)

[Vietnamese](#)

A complete graph of N vertices is a graph in which there is an edge between every pair of nodes.

Your task is to count the number of paths between any pair of nodes in the graph. Note that a path cannot visit a vertex more than once.

Input

A single integer N that is the number of vertices in the graph ($2 \leq N \leq 1000$).

Output

A single integer that is the number of paths between any two nodes in the graph.

Example

Input

4

Output

5

Description

For example, there are 5 paths between 1 and 2:

1-2

1-3-2

1-3-4-2

1-4-2

1-4-3-2