Counting paths in a complete graph

English Vietnamese

A complete graph of N verticles 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 verticles 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