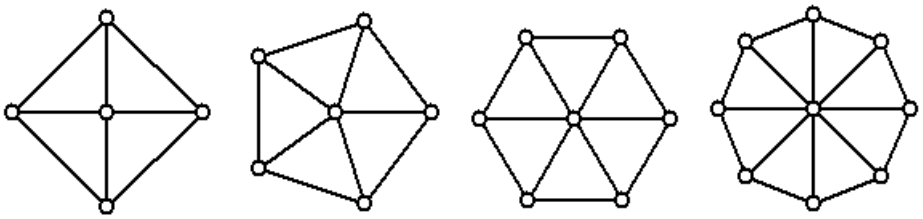
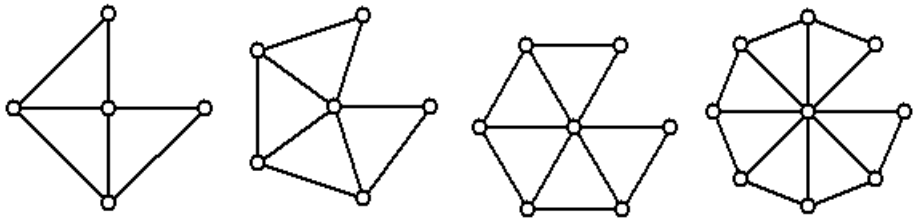
E · How Many Unicycles in a Broken Wheel

(or Unicycle Returns)

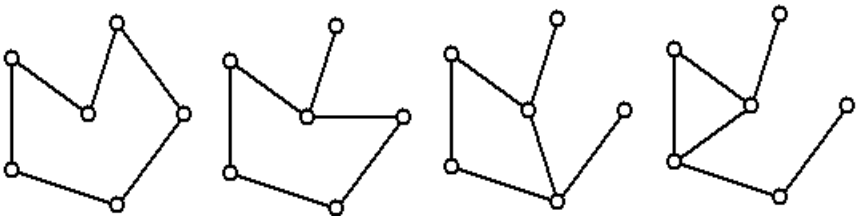
A ***Wheel Graph*** of size ***n*** is a cycle of ***n*** vertices, v[1], …, v[***n***] each of which is connected to a center vertex, v[0]. Examples of wheel graphs of size 4, 5, 6 and 8 are shown below:



A ***Broken Wheel Graph*** of size ***n*** is a wheel graph of size ***n*** with the edge from v[***n***] to v[1] removed. Examples of broken wheel graphs of size 4, 5, 6 and 8 are shown below:



A ***spanning unicycle*** in a graph, **G**, is a spanning tree in **G** with one additional edge added to form a single cycle. Each of the examples below is a spanning unicycle in a broken wheel graph of size 5:



Write a program to compute the number of different unicycles in a broken wheel graph of size ***n***. Recall that two subgraphs, **S1** and **S2**, of a graph **G** are different if there is at least one edge of **G** that is in **S1** and not in **S2** OR an edge in **S2** which is not in **S1**.

Input

Input consists of a single line that contains a decimal integer, ***m*** (3 <= ***m*** <= 4000), which is the size of the wheel graph to find the number of unicycles of.

Output

The single output line consists of the count of unicycles modulo 100007.

Sample Input	Sample Output
5	19

Sample Input	Sample Output
1234	50380