

A. A Very Short Number Sequence

Time limit: 1 second
Memory limit: 65535 kBytes

Description

Your task is to answer one of the four questions below:

Question 1

Given k , a natural number ($k \geq 1$), define $A(k)$ as the largest n , for which the list $L = 1, 2, 3, \dots, n$ has a sublist K of length k , such that the list $L \setminus K$ contains no Arithmetic progression of length k (sublists of length 1 or 2 by default are considered arithmetic progressions of length 1 and 2 respectively).

- Compute $A(k)$ for $k = 1, 2, 3, 4, 5, 7$.

Question 2

Define $B(k)$ as the maximal number of 1's that a $k \times k$ invertible matrix - containing only 0 or 1 - can have ($k \geq 1$).

- Compute $B(k)$ for $k = 1, 2, 3, 4, 5, 7$.

Question 3

Let $C(k)$ be the maximal number of interior regions formed by k intersecting circles, for ($k \geq 1$).

- Compute $C(k)$ for $k = 1, 2, 3, 4, 5, 7$.

Question 4

Let $D(k)$ be the number of walks of length 3 between any two distinct vertices of the complete graph K_{k+1} , ($k \geq 1$). Example: $D(2) = 3$ because in the complete graph ABC we have the following walks of length 3 between A and B : $ABAB$, $ACAB$ and $ACBA$.

- Compute $D(k)$ for $k = 1, 2, 3, 4, 5, 7$.

Input

There is no input for this problem.

Output

The output should contain six numbers separated each other by a single colon. *Eg.*: 0,1,0,0,0,1