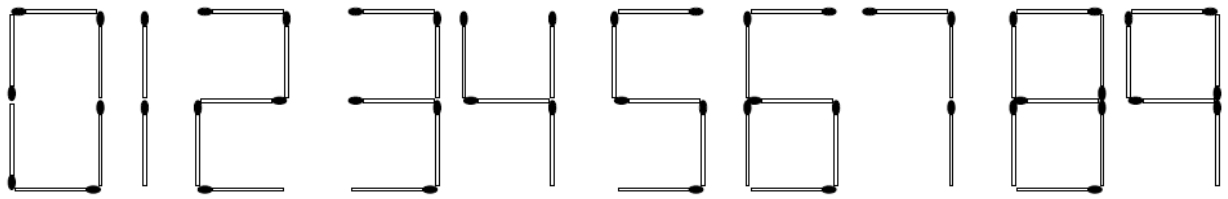
CALIFORNIA STATE UNIVERSITY, LOS ANGELES
PROGFEST 2012

Problem 3
Matchstick Mayhem

Problem: Matchsticks can be used to create "digital" numbers as shown:



You are given N matches, and you must find the number of different numbers that can be represented using the N matches. All of the numbers will be greater than or equal to 0, so no negative signs should be taken into account. For example: if you are given 3 matches, then you can only make the numbers 1 or 7. If you are given 4 matches, then you can make the numbers 1, 4, 7, or 11! Do not take into consideration any leading zeros (i.e. 001, 042, etc), only 0 can start with a 0.

The input must be a sequence of positive integers in free format. For each N, $1 \leq N \leq 80$, output the number of different (non-negative) numbers representable with $\leq N$ matches. Your answers will all be $< 2^{62}$

Input: A sequence of positive integers i, $1 \leq i \leq 80$, indicating how many matches you have.

Output: A sequence of positive integers j, $0 \leq j < 2^{62}$ indicating the count of how many numbers can be created using the number of matches from the input.

Sample Input	Sample Output
3 4 2	2 4 1