Below, we have a picture of Pascal's Triangle where each number is defined as the sum of the two numbers directly above it.

$$
\begin{array}{ccccccccccccccccc}
&&&&&&&&1&&&&&&&&\\
&&&&&&&1&&1&&&&&&&\\
&&&&&&1&&2&&1&&&&&&\\
&&&&&1&&3&&3&&1&&&&&\\
&&&&1&&4&&6&&4&&1&&&&\\
&&&1&&5&&10&&10&&5&&1&&&\\
&&1&&6&&15&&20&&15&&6&&1&&\\
&1&&7&&21&&35&&35&&21&&7&&1&\\
1&&8&&28&&56&&70&&56&&28&&8&&1
\end{array}
$$

The first row of the triangle is considered as row 0, the first number in each row has an index of 0. We define the function $f(n,k)$ for nonnegative integers n,k as

$$f(n,k) = \begin{cases} k\text{th number in the } n\text{th row of Pascal's Triangle if } n \geq k \\ 0 \text{ otherwise} \end{cases}$$

Matthew has made a function for nonnegative integers n,p defined as

$$\text{Matth}(n,p) = \sum_{k=0}^{\infty} f(n,p+k)f(2p,k).$$

Let $N = 10^9 + 7$ and define the following integers as

1. a_1 =Matth$(50,30) \pmod N$
2. a_2 =Matth$(4234,4000) \pmod N$
3. a_3 =Matth$(3000,1234) \pmod N$
4. a_4 =Matth$(2017,34) \pmod N$
5. a_5 =Matth$(4000,3000) \pmod N$
6. a_6 =Matth$(5000,3000) \pmod N$.

The flag will be the string "a_1 a_2 a_3 a_4 a_5 a_6" where all of the integers are written out separated by exactly one space.