

## 5651 Sum of powers

A young schoolboy would like to calculate the sum

$$S_k(n) = \sum_{i=1}^n i^k$$

for some fixed natural  $k$  and different natural  $n$ . He observed that calculating  $i^k$  for all  $i$  ( $1 \leq i \leq n$ ) and summing up results is a too slow way to do it, because the number of required arithmetical operations increases as  $n$  increases. Fortunately, there is another method which takes only a constant number of operations regardless of  $n$ . It is possible to show that the sum  $S_k(n)$  is equal to some polynomial of degree  $k + 1$  in the variable  $n$  with rational coefficients, i.e.,

$$S_k(n) = \frac{1}{M} \left( a_{k+1}n^{k+1} + a_k n^k + \dots + a_1 n + a_0 \right)$$

for some integer numbers  $M, a_{k+1}, a_k, \dots, a_1, a_0$ .

We require that integer  $M$  be positive and as small as possible. Under this condition the entire set of such numbers (i.e.  $M, a_{k+1}, a_k, \dots, a_1, a_0$ ) will be unique for the given  $k$ . You have to write a program to find such set of coefficients to help the schoolboy make his calculations quicker.

### Input

The input file contains several datasets, each of them containing a single integer  $k$  ( $0 \leq k \leq 20$ ).

The first line of the input contains the number of datasets, and it's followed by a blank line. There's also a blank line between datasets.

### Output

For each dataset, write integer numbers  $M, a_{k+1}, a_k, \dots, a_1, a_0$  to the output file in the given order. Numbers should be separated by one space. Remember that you should write the answer with the smallest positive  $M$  possible.

Print a blank line between consecutive outputs.

### Sample input

1

2

### Sample Output

6 2 3 1 0