

# Numbers whose factorials end with n zeros

给定整数n，在0~1000000之间，找出阶乘结尾0的个数为n的数

采用二分法

首先利用二分法找到第一个阶乘结尾0的个数为n的数X，然后从X往后寻找阶乘结尾0的个数为n的数，直到阶乘结尾0的个数大于n为止

```
#include <bits/stdc++.h>

using namespace std;

// 返回n的阶乘结尾0的个数
int countTrailingZeros(int n) {
    int count = 0;
    while (n) {
        count += n / 5;
        n /= 5;
    }
    return count;
}

void factorialsEndWithNZeros(int n) {
    int low = 0;
    int high = 1000000;
    // 找到第一个结尾有n个0的数
    while (low <= high) {
        int mid = low + (high - low) / 2;
        if (countTrailingZeros(mid) < n)
            low = mid + 1;
        else
            high = mid - 1;
    }
    vector<int> res;
    // 从第一个结尾有n个0的数往后找
    while (countTrailingZeros(low) == n) {
        printf("low = %d\n", low);
        res.push_back(low++);
    }
    for (int num: res)
        printf("%d ", num);
    printf("\n");
}

int main() {
    int T;
    scanf("%d", &T);
    while (T--) {
        int n;
        scanf("%d", &n);
        factorialsEndWithNZeros(n);
    }
}
```