

7235 3-Primes Problem

In number theory, the 3-primes problem states that:

Every odd number greater than 5 can be expressed as a sum of exactly three primes. (A prime may be used more than once in the same sum.)

Some examples of the problem are:

$$\begin{aligned}7 &= 2 + 2 + 3 \\11 &= 2 + 2 + 7 \\25 &= 7 + 7 + 11\end{aligned}$$

In 1939, Russian mathematician I. M. Vinogradov showed that any *sufficiently large* odd integer can be expressible as a sum of three primes. Later it is shown that sufficiently large in Vinogradov's proof meant numbers greater than $3^{3^{15}} \approx 10^{7000000}$. The best known improved bound for the figure is approximately $e^{3100} \approx 2 \times 10^{1346}$. This number is too large to admit checking all smaller numbers by computer.

Given a positive odd integer greater than 5, write a program to test whether or not the integer can be represented as a sum of exactly three primes, where the primes may not be distinct.

Input

Your program is to read from standard input. The input consists of T test cases. The number of test cases T is given in the first line of the input. Each test case consists of a line containing a positive integer K ($7 \leq K < 1,000$).

Output

Your program is to write to standard output. Print exactly one line for each test case. Print three primes, in nondecreasing order, if the input number K can be represented as a sum of exactly three primes, otherwise print 0(zero). If there are more than one case for three primes, print any case of them.

The following shows sample input and output for three test cases.

Sample Input

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3
7
11
25
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Sample Output

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2 2 3
2 2 7
5 7 13
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