DWITE Online Computer Programming Contest
December 2004

Problem 4

Waring's Prime Number Conjecture

Waring's prime Number Conjecture states: Every odd integer *n* is a prime or the sum of three primes.

For example: 21 = 7 + 7 + 7
21 = 13 + 5 + 3
21 = 11 + 7 + 3
21 = 11 + 5 + 5
21 = 17 + 2 + 2
33 = 11 + 11 + 11
33 = 13 + 13 + 7
33 = 17 + 11 + 5
33 = 17 + 13 + 3
33 = 19 + 7 + 7
33 = 19 + 11 + 3
33 = 23 + 5 + 5
33 = 23 + 7 + 3
33 = 29 + 2 + 2
23 is prime

The input file (**DATA41.txt** for the first submission and **DATA42.txt** for the second submission) will contain five lines of data. Each line will contain an odd positive integer, n, 3 <= n <= 99999.

The output file (**OUT41.txt** for the first submission and **OUT42.txt** for the second submission) will contain the number of different ways n can written as a sum of three prime numbers, order doesn't matter. If n is prime then output the word "PRIME", in upper case.

Sample Input (Only three sets given)	**Sample Output**
21 33 23	5 9 PRIME

http://mathworld.wolfram.com/WaringsPrimeNumberConjecture.html