

Cryptography

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After Heidi noticed that she was being constantly followed by the Marmot Security Agency (MSA), she was very afraid that someone might call her presenting as her friend and ask her personal information. However, Heidi is a very friendly cow and she likes to chit-chat with her friends. So, Heidi and her friends devised a special system of how they would recognize each other. In the beginning of each phone call, the caller needs to tell a password, and only if the password is correct, the phone call may continue.

The rule for the password is following: the password is a number that has a prime number of prime factors. Note that this includes all prime factors, even if some factor repeats itself. For example $40 = 2 \cdot 2 \cdot 2 \cdot 5$ has 4 prime factors. Since 4 is not a prime number, 40 is not a good password.

You are asked to write a function that would help Heidi recognize who is calling her.

Constraints

Your function is going to be called N times, $N \leq 5$. Password number p will be a positive integer with $p \leq 100\,000\,000$.

Sample run

Given passwords	Expected output
6	true
12	true
40	false