N-Factorful

A number is called **n**-factorful if it has exactly **n** distinct prime factors. Given positive integers **a**, **b**, and **n**, your task is to find the number of integers between **a** and **b**, inclusive, that are **n**-factorful. We consider 1 to be 0-factorful.

Input

Your input will consist of a single integer **T** followed by a newline and **T** test cases. Each test cases consists of a single line containing integers **a**, **b**, and **n** as described above.

T > 10000
$1 \le a \le b \le 10^6$
$0 \le n \le 10$

Output

Output for each test case one line containing the number of **n**-factorful integers in [**a**, **b**].

Example

Input:
5
1 3 1
1 10 2
1 10 3
1 100 3
1 1000 0

Output:
2
2
0
8
1