

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 case consists of a single line containing integers **a**, **b**, and **n** as described above.

$T > 10000$

$1 \leq a \leq b \leq 10^6$

$0 \leq n \leq 10$

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
```