UVa Online Judge

# 1213 Sum of Different Primes

A positive integer may be expressed as a sum of different prime numbers (primes), in one way or another. Given two positive integers $n$ and $k$, you should count the number of ways to express $n$ as a sum of $k$ different primes. Here, two ways are considered to be the same if they sum up the same set of the primes. For example, 8 can be expressed as $3 + 5$ and $5 + 3$ but they are not distinguished.

When $n$ and $k$ are 24 and 3 respectively, the answer is two because there are two sets $\{2, 3, 19\}$ and $\{2, 5, 17\}$ whose sums are equal to 24. There are no other sets of three primes that sum up to 24. For $n = 24$ and $k = 2$, the answer is three, because there are three sets $\{5, 19\}$, $\{7, 17\}$ and $\{11, 13\}$. For $n = 2$ and $k = 1$, the answer is one, because there is only one set $\{2\}$ whose sum is 2. For $n = 1$ and $k = 1$, the answer is zero. As 1 is not a prime, you shouldn't count $\{1\}$. For $n = 4$ and $k = 2$, the answer is zero, because there are no sets of two different primes whose sums are 4.

Your job is to write a program that reports the number of such ways for the given $n$ and $k$.

## Input

The input is a sequence of datasets followed by a line containing two zeros separated by a space. A dataset is a line containing two positive integers $n$ and $k$ separated by a space. You may assume that $n \leq 1120$ and $k \leq 14$.

## Output

The output should be composed of lines, each corresponding to an input dataset. An output line should contain one non-negative integer indicating the number of ways for $n$ and $k$ specified in the corresponding dataset. You may assume that it is less than $2^{31}$.

## Sample Input

```
24 3
24 2
2 1
1 1
4 2
18 3
17 1
17 3
17 4
100 5
1000 10
1120 14
0 0
```

## Sample Output

```
2
3
1
0
```

```
0
2
1
0
1
55
200102899
2079324314
```