

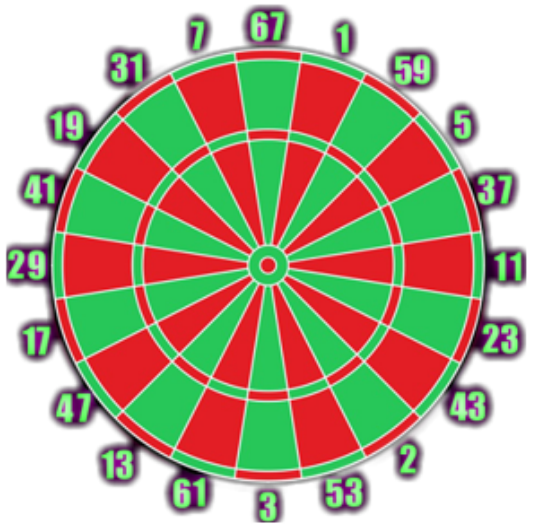
# 13245 Prime Darts

*We can not be anything without playing to be.*  
Jean-Paul Sartre

A dartboard manufacturer wants to revolutionize the game of darts, creating a *prime* dartboard for math geeks. He has designed several boards with different numbers of areas, so that a board with  $n$  areas has the following scores: the first area is worth 1 point, the remaining  $n - 1$  areas have a value corresponding to the first  $n - 1$  prime numbers.

For example, a prime dartboard with 20 areas could be as in the picture on the right:

We want to know the minimum number of darts needed to obtain a score of  $q$  points on a prime dartboard of size  $n$ .



**Input**

The first line of the input contains an integer,  $t$ , indicating the number of prime dartboards.

For each case, there is a line with two numbers separated by a space. The first one,  $n$ , represents the number of areas of the board, with  $1 \leq n \leq 100$ , and the second number,  $q$ , indicates the score we have to get, with  $1 \leq q \leq 5000$ .

**Output**

For each test case, the output should consist of one line showing the minimum number of darts needed to obtain a  $q$  points on a prime dartboard of size  $n$ .

**Sample Input**

```
6
1 200
5 15
5 34
6 34
7 4
20 1000
```

**Sample Output**

```
200
3
6
4
2
16
```