Problem A. Houda and Flight Seats

Input file:	standard input
Output file:	standard output
Time limit:	3 seconds
Memory limit:	256 megabytes

Houda is a newly hired flight attendant in a big airliners and one of her day to day missions is to choose seats for business class clients .

The seats available are numbered from 1 to N and for business requirements every flight is assigned a number P that is used to calculate the $Value$ of the flight .

The airlines company defines that two seats are in $Harmony$, if the numbers on the back of both of them are $coprime$, that means that their numbers say a and b have the following property : $gcd(a, b) = 1$

Houda's task will be to choose the largest possible subset of seats in $Harmony$, if multiple subsets with the same length are possible she will choose the lexicographically smallest .

The value of a giving seating is determined as follows: Houda is allowed to rearrange the order of the seats anyway she likes and then she puts the seats numbers in an array, let's call it arr, the $Value$ will be calculated as $\sum_{i=2}^{sizeof(arr))}(arr[i] * arr[i-1]) \,\%P$

Can you help Houda choose the optimal arrangement of the chosen subset in such a way so that the $Value$ of the flight is minimized .

Input

The first list of input is an integer $1 \leq T \leq 50$, the number of test cases.

T lines follow, each contains two integers $2 \leq N \leq 50$ and $1 \leq P \leq 150$ as described in the statement.

Output

For each test case print one line containing the final $Value$ of the flight

Examples

standard input	standard output
2 2 4 5 8	2 7
1 4 5	3