Indeterminate Equation

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Given positive integers n, k, find the number of positive integer solutions to the indeterminate equation $a^k - b^k = n$.

Input

The first line of input is an integer T ($1 \leq T \leq 20$) indicating the number of queries. The following T lines, each contain two integers n, k indicating a single query. It is guaranteed that $1 \leq n \leq 10^{18}$, $3 \leq k \leq 64$.

Output

For each query, output a single line contains a single integer, indicating the answer.

Example

standard input	standard output
3 7 3 15 4 31 5	1 1 1