Problem K. King, Joker, and Divisibility

Input file:	*standard input*
Output file:	*standard output*
Time limit:	4 seconds
Memory limit:	1024 mebibytes

The King asks the Joker to answer q queries of the following form:

Given are three integers: ℓ_i, r_i, and k_i. Find the k_i-th smallest positive integer x such that x does not divide any of the integers from ℓ_i to r_i (inclusive).

Input

The first line of the input contains one integer q ($1 \le q \le 10^5$).

Each of the following q lines contains a query consisting of three integers: ℓ_i, r_i, and k_i ($1 \le \ell_i \le r_i \le 2 \cdot 10^5$, $1 \le k_i \le 2 \cdot 10^5$).

Output

For each query, print one integer: the value of x for that query.

Example

standard input	*standard output*
3 10 11 5 12345 23456 789 1 200000 200000	8 23629 400000