Illegal Logging

While everyone is enjoying the beaches, illegal loggers in Palawan have been cutting down trees under everyone's noses. Of course, you're probably familiar of what Filipinos say about illegal logging. *Ang illegal logging ay logging illegal!.*

These loggers are greedy criminals! But maybe, it's too early to say "greedy". Perhaps we have just misunderstood them and assuming they are greedy will lead us down the wrong path in trying to solve this problem. And by "this problem", we mean this problem of Illegal Logging.

Groot appears in the middle of the balding forest, upset at what's happening. At this time, there are n illegal loggers in the forest. The ith illegal logger is d_i meters away from Groot. The ith illegal logger runs away from Groot towards a direction that makes them v_i meters further from Groot for every second that passes.

Groot cannot move. However, Groot can instantly stun (in zero amount of time!) an illegal logger with his hand, regardless of distance. If an illegal logger is d meters away from him, Groot expends d units of energy to instantly stun the logger.

After stunning a logger, he has exactly one second of cooldown time before he can use his stunning power again. (Note that this also implies that Groot can only stun one logger at a time.) A stunned logger will stop moving and the authorities will be able to catch them on the spot in which they are stunned.

Given these constraints, what is the minimum amount of energy Groot must expend in order to stun all n illegal loggers? Take note that he may immediately stun an illegal logger as soon as he appears (thus stunning that logger in their starting position).

Input Format

The first line of input contains t, the number of test cases.

The first line of each test case consists of a single integer n. The second line

contains n space-separated integers $d_1, d_2, \ldots, d_n$. The third line contains n space-separated integers $v_1, v_2, \ldots, v_n$.

Output Format

For each test case, print a single line containing a single integer denoting the answer. Since the answer can be very large, only output it modulo $10^9 + 7$.

Constraints and Subtasks

For all subtasks
$0 \leq d_i, v_i \leq 10^{12}$ $1 \leq t \leq 300$ $1 \leq n$ The sum of the ns is $\leq 3 \cdot 10^5$

Subtask	Points	Constraints
1	**4**	$n \leq 1000$ $d_i \leq 10^6$ $v_i = 0$
2	**18**	$n \leq 8$
3	**20**	$n \leq 16$
4	**34**	$n \leq 1000$
5	**24**	$n \leq 10^5$

Sample I/O

Input	Output
1 3 42 6 69 143 80 214	420