The Best Card

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	512 megabytes

Snakebite is the most powerful card in the game *Slay the Spire 2*, and Yuki enjoys using it to defeat enemies.

The game lasts for 10^{1000} turns. At the start of the game, the enemy has 0 layers of poison.

Yuki has n snakebite cards in total. The effect of the i-th snakebite is: when played, it increases the enemy's poison layers by v_i. Yuki will play the i-th snakebite at the start of the t_i-th turn.

At the end of each turn, let x be the number of poison layers on the enemy:

- If $x = 0$, nothing happens;
- If $x \neq 0$, the enemy takes x damage, and the number of poison layers decreases by 1, i.e., $x \leftarrow x - 1$.

To maximize the total damage dealt to the enemy, Yuki can perform k enchantments before the game begins. In each enchantment, Yuki chooses a positive integer $i \leq n$ and increases the value of v_i by 1. The same index i can be selected multiple times.

You need to determine the maximum damage the enemy can receive after Yuki performs k enchantments.

Input

Each test contains multiple test cases.

The first line contains an integer t ($1 \leq t \leq 10^4$), representing the number of test cases.

For each test case:

- The first line contains two integers n, k ($1 \leq n \leq 3 \cdot 10^5$, $0 \leq k \leq 10^9$).
- The second line contains n integers $v_1, v_2, \ldots, v_n$ ($1 \leq v_i \leq 10^9$, $1 \leq \sum v_i \leq 10^9$).
- The third line contains n integers $t_1, t_2, \ldots, t_n$ ($1 \leq t_i \leq 10^9$).

It is guaranteed that the sum of n over all test cases does not exceed $3 \cdot 10^5$.

Output

For each test case, output a single line containing an integer representing the maximum damage the enemy can receive after Yuki performs k enchantments.

Example

standard input	standard output
5 2 1 2 3 1 4 2 2 3 4 1 3 4 1 3 3 1 4 4 4 1 5 3 0 16 27 62 9 88 11 3 5 9 3 1 8 3 3	13 37 63 3335 126