

4549 The Robbery

In the downtown of Bucharest there is a very big bank with a very big vault. Inside the vault there are N very big boxes numbered from 1 to N . Inside the box with number k there are k very big diamonds, each of weight W_k and cost C_k .

John and Brus are inside the vault at the moment. They would like to steal everything, but unfortunately they are able to carry diamonds with the total weight not exceeding M .

Your task is to help John and Brus to choose diamonds with the total weight less than or equal to M and the maximal possible total cost.

Input

The first line contains single integer T — the number of test cases. Each test case starts with a line containing two integers N and M separated by a single space. The next line contains N integers W_k separated by single spaces. The following line contains N integers C_k separated by single spaces.

Output

For each test case print a single line containing the maximal possible total cost of diamonds.

Constraints:

$$1 \leq T \leq 74,$$

$$1 \leq N \leq 15,$$

$$1 \leq M \leq 1000000000(10^9),$$

$$1 \leq W_k, C_k \leq 1000000000(10^9).$$

Sample Input

```
2
2 4
3 2
5 3
3 100
4 7 1
5 9 2
```

Sample Output

```
6
29
```