

Knapsack

The Problem

Given weights and values for a set of items, determine the maximum value of items that can be carried in a vehicle with a given carrying capacity without exceeding that capacity.

The Input

The input begins with a line containing a single integer, T , the number of test cases which follow, $1 \leq T \leq 100$.

For each test case, 4 lines of integers follow.

- The first line contains the capacity of the vehicle, W , $100 \leq W \leq 5000$.
- The second line contains the number of items available to choose from, N , $1 \leq N \leq 1000$.
- The third line contains weights for the individual items $w_1 \dots w_n$, $1 \leq w_i \leq 1000$.
- The fourth line contains values for the individual items, $v_1 \dots v_n$, $1 \leq v_i \leq 1000$.

The Output

For each test case output the maximum value of the load that fits in the capacity of the vehicle on a line by itself.

Sample Input

```
2
5
4
2 1 3 2
12 10 20 15
10
4
7 3 4 5
42 12 40 25
```

Sample Output

```
37
65
```