C- Guitar Shop

Somhed has a very successful music store in his home city. But his store doesn't sell guitars!! How awful! After many years of complains and a rather ugly complain letter from the mayor, Somhed has decided to end this war and start selling guitars.

He just bought N guitars to sell in his store. Each guitar i has a weight w_i and a price p_i. But before selling them, he needs to display them on the store window so that everybody can see them. In his store window he has M hangers. In each hanger j he can put any number of guitars with a maximum summed weight of wh_j. The order of the guitars in each hanger matters, so if an hanger has a first guitar (the one in front), a second .... To prevent wear down of each hanger, it is important that a guitar that comes before another (that is displayed in front of another) is lighter than the other, so the first guitar must be strictly lighter than the second and the second lighter than the third ...

To maximize sales, Somhed wants to place the priciest guitars first in each hanger. So, to display the most priciest guitars he has the following metric: the value of the window is equal to the sum of prices of the guitars divided by the position in which they are in the according hanger (so the price of a guitar i in the first position is p_i, in the second position is $\frac{p_i}{2}$, in the third $\frac{p_i}{3}$ ...).

Now you have to find a way of helping Somhed display his guitars to maximize the value of a window by telling him the best value his window can have.

Input

The first line has the number of test cases. Each test case has 4 lines.

The first one has an integer N that represents the number of guitars. Then follows a line with $2N$ integers, each pair represents the weight w_i and the price p_i of the i^{th} guitar (by that order).

The third line has a single integer M that represents the number of hangars. The next line contains M integers that represent the maximum weight wh_k each hanger j can withstand.

Output

Per test case a single integer representing the maximum value for a window.

Sample Test Case

Input	Output
TBD	TBD