
Roman Numerals

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

There are seven characters in Roman numerals: I, V, X, L, C, D, M, representing 1, 5, 10, 50, 100, 500, 1000 respectively.

Now you will use Roman numerals and Arabic numerals to represent a positive integer in decimal. For example, $X2 = 10 \times 10^1 + 2 \times 10^0 = 102$, $IV = 1 \times 10^1 + 5 \times 10^0 = 15$.

For each digit, there is a certain cost for its representation. Find the minimum cost to represent a positive integer using a mixed representation.

Input

The first line contains a positive integer T ($1 \leq T \leq 2 \cdot 10^3$), indicating the number of test cases.

For each test case, the first line contains a positive integer n ($1 \leq n \leq 10^{18}$), indicating the integer to be represented.

The second line contains 10 positive integers c_0, c_1, \dots, c_9 ($1 \leq c_i \leq 10^7$), representing the cost of using the Arabic numerals 0 to 9 in the mixed representation.

The third line contains 7 positive integers c_I, c_V, \dots, c_M ($1 \leq c_i \leq 10^7$), representing the cost of using the Roman numerals I to M in the mixed representation.

Output

For each test case, output a single integer, representing the minimum cost required to represent the integer in decimal using a mixed representation of Roman numerals and Arabic numerals.

Example

standard input	standard output
5	2
102	7
1 1 1 1 1 1 1 1 1 1	3
1 1 1 1 1 1 1	6
112	6
1 5 5 1 1 1 1 1 1 1	
1 1 1 1 1 1 1	
150	
1 1 1 1 1 1 1 1 1 1	
5 5 5 5 5 5 5	
114514	
10 5 5 1 1 1 1 1 1 1	
1 1 1 1 1 1 1	
1919810	
1 1 1 1 1 1 1 1 1 1	
1 1 1 1 1 1 1	

Note

102 can be represented as X2, I02, and 102. The representation with the minimum cost is X2, requiring a cost of 2.

112 can be represented as I12, 1I2, II2 and 112. The representation with the minimum cost is II2, requiring a cost of 7.

150 can be represented as XL , $5C$, $10L$, etc. The representation with the minimum cost is 150 , requiring a cost of 3 .