Problem G - Predicting Protests

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CSC1015F/17F - 2018 - problem set

The members of the Undeniably Clever Testers team at the research organisation "Calamity-free Society" has determined a simple set of parameters to simulate the behaviour of the many political parties and unions of our country. One of those parameters is a positive integer p, called the *protest parameter*, that denotes the average number of days between two successive protests called by the corresponding party. Although the parameter is simplistic, it is still useful for forecasting on which days the protests are likely to take place and thus be better prepared for it.

A team member of the UCT team at CS illustrates how it works. Consider three political parties. Assume $p_1 = 3$, $p_2 = 4$, and $p_3 = 8$ where p_i is the protest parameter for party i ($i = 1, 2, 3$). Now, let's simulate the behaviour of these three parties for $N = 14$ days. The simulation always starts on a Sunday, and there will be no protests on Fridays and Saturdays. The simulation below shows that there will be exactly 5 protest in 14 days, being on days 3, 4, 8, 9, and 12; there is no protests on day 6 (a Friday); hence 5 working days in 2 weeks are lost due to protests.

Days	1 Su	2 Mo	3 Tu	4 We	5 Th	6 Fr	7 Sa	8 Su	9 Mo	10 Tu	11 We	12 Th	13 Fr	14 Sa
Party 1			x			x			x			x		
Party 2				x				x				x		
Party 3								x						
Protests			1	2				3	4			5		

Now it is your task to determine the number of working days we lose in those N days, given the protest parameters for several political parties and the value of N.

Input The first line of the input consists of a single integer T denoting the number of test cases. The first line of each test case contains an integer N (where $7 \leq N \leq 3650$), being the number of days over which the simulation has to be run. The next line has integer P (where $1 \leq P \leq 100$) representing the number of political parties in this case. The ith of the next P lines contains a positive integer p_i (which will never be a multiple of 7) giving the *protest parameter* for party i ($1 \leq i \leq P$).

Output For each test case in the input output the number of working days that there were protests. Each output must be on a separate line.

(P.T.O. for sample in/output)

Sample input

```
2
14
3
3
4
8
100
4
12
15
25
40
```

Sample output

```
5
15
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