Problem I. Iwakuni Trip Plans

Input file:	standard input
Output file:	standard output
Time limit:	5 seconds
Memory limit:	128 megabytes

A Iwakuni route is a sequence of camping locations a bit less than a day's travel apart. The camping locations can be either dry camps with little water or oases with plentiful water and perhaps fodder to animals. A Iwakuni trip always starts and ends at an oasis and never goes back to a previous camp. A Iwakuni trip is a destination oasis and a number of days to get there. For example, if the oases are at camps 2, 3, 5, 7, 11, etc. and the Iwakuni wants to meet another Iwakuni at camp 7 in 10 days, the Iwakuni can wait 3 days and then go directly to camp 7, or leave now and wait 3 days at camp 7, or wait 1 day at each of camps 2, 3 and 5. A Iwakuni trip plan is the choice of which camps to be at each night. For example, waiting 1 day at each of 2, 3, 5 gives a trip plan 1, 2, 2, 3, 3, 4, 5, 5, 6, 7.

Write a program which takes as input the locations of the oases on a Iwakuni route and a Iwakuni trip destination and number of days and outputs the number of distinct trip plans.

For example: with oases at camps 2, 3, 5, 7, 11, a 7 day trip to camp 5 has 10 trip plans as shown below (0 means rest at start).

$$0012345, 0122345, 0123345, 0123455, 1222345,$$

$$1223345, 1223455, 1233345, 1233455, 1234555$$

Input

Input consists of multiple lines of input. The first line of input contains two space separated decimal integers N and M, where N is the number of oasis locations to be specified and M is the number of Iwakuni trips for which the number of trip plans are to be found ($5 \le N \le 20, 1 \le M \le 10$).

The second line of input contains N space separated decimal integers giving the number of days, On, to each oasis in increasing ($O_{n-1} < O_n$) order ($1 \le O_n \le 60$).

The remaining M input lines each contain two space separated decimal integers D_m and T_m, where D_m is the index of the destination oasis in the list and T_m is the number of days to get there: ($1 \le D_m \le N, O[D_m] \le T_m \le 60$).

Output

There are M lines of output. The kth output line contains a single decimal integer giving the number of distinct trip plans for a caravan over the route of camps in the second input line with the trip as specified in input line $k + 2$.

Examples

standard input	standard output
5 1 2 3 5 7 11 3 7	10
8 3 2 3 5 7 11 13 17 19 3 7 5 15 8 24	10 126 1287