Peter Principle

The *Peter Principle* states that in an organisation people rise to the level of their own incompetence. In other words, while you are competent at your job you can be promoted, but this will cease once you become incompetent.

A new start-up company (so new they do not yet have a name) are looking to hire some management. Their management structure has n potential positions, where n is the most senior, and they have a group of applicants for those positions, each of whom has an incompetence level. An applicant whose incompetence level is m is suitable for any position $\leq m$ in the company.

Applicants are interviewed in a random order, immediately hired at level 1 and promoted as high and as quickly as possible (before the next applicant is even interviewed). This promotion would be to their incompetence level but, since length of time with the company is more important than ability, they cannot be promoted above an applicant who has already been hired. Positions cannot be filled by more than one person.

The company keeps hiring until the level 1 position is filled by an applicant who cannot rise higher. The CEO's nephew, who has an incompetence level of 1, is always among the applicants.

For example, if the first applicant has an incompetence of 3 they will be promoted to position 3, and if the second has an incompetence of 5 they will be promoted to position 2. If they had been interviewed the the opposite order position 5 would have been filled followed by position 3.

Once the hiring process is over the company looks at the incompetence level of the individuals filling each position; this is the final management structure. Individuals with the same incompetence level are indistinguishable.

For example, suppose there are 4 applicants of incompetence 1, 2, 2 and 3. After hiring the final management structure might look like any of the following:

position	incompetence level						
1	2	1	1	3	2	1	1
2	2	2		2	2	2	
3	3	3	3				

Write a program to find the number of different final management structures with exactly p people. The first line of the input will be a single integer n ($1 \leq n \leq 20$) indicating the number of potential positions in the company. This will be followed by n lines, the ith of these lines will contain a single integer a_i ($0 \leq a_i \leq 20$) indicating the number of applicants with an incompetence level of i. This will be followed by a single integer p ($1 \leq p \leq n$).

Your output should consist of a single integer indicating the number of possible final management structures that contain exactly p people. You will not be required to produce an answer $\geq 2^{31}$.

Sample Input

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3
1
2
1
2
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Sample Output

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4
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