CCC '07 J5 - Keep on Truckin'

Time limit: 1.0s   **Memory limit:** 256M

Canadian Computing Competition: 2007 Stage 1, Junior #5

A truck driver is planning to drive along the Trans-Canada highway from Vancouver to St. John's, a distance of 7000 km, stopping each night at a motel. The driver has been provided with a list of locations of eligible motels, with the respective distance of each motel, measured in km, from the starting point in Vancouver. Some of the motel locations are:

```
0, 990, 1010, 1970, 2030, 2940, 3060, 3930, 4060, 4970, 5030, 5990, 6010, 7000
```

but more motel locations may be added just before the trip begins.

Determine if it is possible to complete the journey if:

1. the trucking company insists that the driver travels a minimum distance of A km per day,
2. the law sets a maximum distance of B km per day, and
3. each night, the driver must stay at an eligible motel (from the above list or the additional locations described below).

The driver is interested in different options when making the trip, and you are to write the program to calculate how many different options there are.

For example, if no new motel locations are added, $A = 1$ and $B = 500$, then it is impossible to make the trip, i.e., the number of options is 0. If $A = 970$ and $B = 1030$ then there is one way to make the trip, but if $A = 970$ and $B = 1040$ then there are four ways to make the trip. There are two ways to make the trip if $A = 970, B = 1030$, and we add one stop at 4960.

Input Specification

The first two lines of the input are the minimum distance A and the maximum distance B ($1 \le A \le B \le 7000$), both of which are integers. The third line of the input is an integer N ($0 \le N \le 20$), followed by N lines, each giving the location m of an additional eligible motel ($0 < m < 7000$).

You should note that no two motels are located at the same distance from Vancouver.

Output Specification

Output the number of different ways the driver can choose the motels to make the trip, under the given constraints.

Sample Input 1

```
1
500
0
```

Sample Output 1

```
0
```

Sample Input 2

```
970
1030
0
```

Sample Output 2

```
1
```

Sample Input 3

```
970
1040
0
```

Sample Output 3

```
4
```

Sample Input 4

```
970
1030
1
4960
```

Sample Output 4

```
2
```