Chess Championship

In the World Chess Championship of 2035, 2^N contestants were supposed to participate. Because of sudden turn of the hurricane Alice, many flights were canceled last minute and many of the contestants could not arrive on time to participate in the championship.

With all the matches pre-arranged ahead of time, the organizer decide to keep the schedule as is and allow *walkover matches* in case when one of the players is missing.

- If both players are available, then there will be a normal match.
- If only one player is available, then this is a *walkover match* and the player automatically advances to the next level.
- If no player is available, then there is no match.

In the figure on the right, the players 3 and 4 could not arrive. Their match is canceled. Players 1 and 2, play their regular match and the winner advances to the next level match. But there is no second player there, so it is a *walkover match*.

Given the list of players who could not arrive on time, calculate the number of the *walkover matches* in the whole championship.
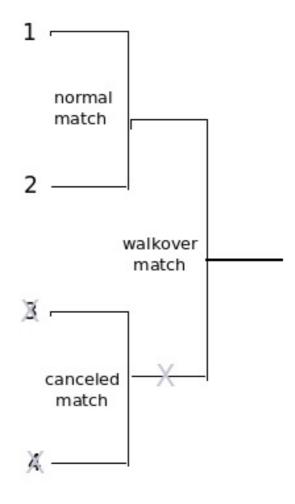

Input

Each test begins with two integers: `1 <= N <= 10` and `0 <= M <= 2^N`. `2^N` is the number of players scheduled for the championship. `M` is the number of players who could not arrive on time due to the canceled flights.
The next line contains `M` integers, denoting the players who have not arrived. The players are numbered `1` to `2^N`.

Output

The number of *walkover matches*.

Example 1

```
Input:
2 2
3 4
Output:
1
```

Example 2

```
Input:
3 5
1 2 3 4 5
Output:
2
```

Example 3

```
Input:
2 1
2
Output:
```

1