



6: Christmas Cookie Challenge

Level: Medium

Time limit: 5 seconds

Santa's elves are having a Christmas cookie-making contest. Each time they complete a batch of cookies, they get points for how much they have baked in total. If the elves start with a gingerbread family (7 cookies), they get 7 points. If the elves then bake a batch of sugar cookies (3 cookies), they then get 10 points (since $7 + 3 = 10$). If the elves then make a batch of delicate snowflake cookies (2 cookies in the batch) they then get 12 points (since $7 + 3 + 2 = 12$). If the elves stop, then they got $7 + 10 + 12 = 29$ points

After a long day in Santa's kitchen, an elf tells you, "Wow, I'm beat! I got a total of n points today!" Exhausted, the elf wonders how many points they've scored. Given n points, can you determine the amount of cookies the elf made? Several scoring combinations might be possible. For example, to get 29 points, the elf could have made a batch of sugar cookies, then two batches of delicate snowflake cookies, then a gingerbread family. In this case, the elf made 14 cookies.

Input

The challenge begins with the number of cases to test, between 1 and 20, inclusive. Each case starts with two integers N and M where $1 \leq N \leq 5,000$, representing the total number of points an elf got, and $1 \leq M \leq 10$, indicating the number of cookie types in Santa's contest. Following this, M unique integers S_1, S_2, \dots, S_m ($1 \leq S_i \leq 20$) will be listed, representing the number of cookies in each type of batch.

Output

For each case, output the highest possible number of cookies baked. If there is more than one possible combination, provide the highest one. If no combination of cookies corresponds to the total number of points, it means the elf has made an error in their count. In this scenario, output '-1'. Do not include extra spaces in your output.

Sample input 1

3
24 3
7 3 10
13 2
2 10
30 2
7 10

Sample output 1

17
-1
20