Problem D
Dating time
Problem ID: datingtime

Our two lovebirds, Banmuon and Henho want to go on a date. However, they are afraid that their friends or families may find out. Thus, they have decided to setup their dating time using the following secret methods:

- Banmuon will send Henho a string with format `h1:m1 h2:m2 alpha` where `h1:m1` and `h2:m2` represent some time in 24-hour format. $alpha$ is an integer between 0 and 180 and **is divisible by** 90.
- Their dating time will be some time between `h1:m1` and `h2:m2`, where the two clock hands, hour and minute, forms an angle equals to $alpha$ degree.

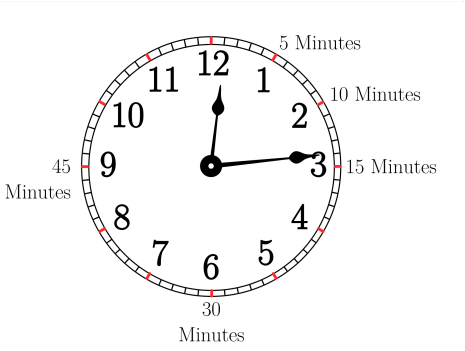


Photo by Phrontis, via Wikipedia.

However, there is a problem: their dating time may not be unique! Please help Banmuon and Henho figure out how many possible valid dating times there are.

Note

In this problem, we use a normal analog clock:

- The minute hand rotates continuously. It takes 60 minutes to make one complete rotation (from 12 to 12).
- The hour hand rotates continuously. It takes 12 hours to make one complete rotation (from 12 to 12).

Input

The first line of input contains a single integer t ($1 \le t \le 100$) — the number of test cases.

t lines follow, each line has format: `h1:m1 h2:m2 alpha` ($0 \le h_1, h_2 \le 23, 0 \le m_1, m_2 \le 59, 0 \le alpha \le 180$). h_1, m_1, h_2 and m_2 will have exactly two digits, with leading zero if they are less than 10.

It is guaranteed that `h1:m1` is less than or equal to `h2:m2` and $alpha$ **is divisible by** 90.

Output

For each test case, print the number of instants when the two clock hands form an angle equals to $alpha$ degrees, between `h1:m1` and `h2:m2`, inclusive.

Explanation of Sample input

In the first test case, there are 22 instants when the two clock hands form a 0-degree angle. Below are the first 11 instants.

1. `00:00`
2. `01:05` and $\frac{5}{11}$ minute.
3. `02:10` and $\frac{10}{11}$ minute.
4. `03:16` and $\frac{4}{11}$ minute.
5. `04:21` and $\frac{9}{11}$ minute.
6. `05:27` and $\frac{3}{11}$ minute.
7. `06:32` and $\frac{8}{11}$ minute.
8. `07:38` and $\frac{2}{11}$ minute.
9. `08:43` and $\frac{7}{11}$ minute.
10. `09:49` and $\frac{1}{11}$ minute.
11. `10:54` and $\frac{6}{11}$ minute.

Sample Input 1	Sample Output 1
3 00:00 23:59 0 00:00 23:59 90 18:00 18:01 180	22 44 1