

## Problem 2: The Era Meteor Shower

### 6+1 Points

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Rank: 1+2

## Introduction



*“The view's not so good from inside the city, though...*

*Next time, then. I know a place where you can see them more clearly.  
I'll take you there in [fifty years](#).”*

## Problem Statement

The Era Meteor Shower occurs once every 50 years. If someone was born  $B$  years ago, has a lifespan of  $L$  years, and the next meteor shower will occur  $E$  years from now, how many times would they be able to see the Era Meteor Shower? Include occurrences on birth & death years.

*Note: Templates are available for this problem—and **all other problems in this contest**—in Python, Java, and C++! Find them in the [contest.zip provided at the start of the contest](#). Templates handle input and output for you, so you can just fill out a single function!*

## Input Format

The first line of the input contains a single integer **T** denoting the number of test cases that follow. For each test case:

- A single line contains three space-separated integers **B L E** where:
  - **B** denotes the number of years ago when someone was born.
  - **L** denotes the lifespan of that person.
  - **E** denotes the number of years until the next Era Meteor Shower.

## Output Format

For each test case, output a single integer representing the number of times the given person sees the Era Meteor Shower over the course of their life.

## Constraints

$$1 \leq T \leq 100$$

$$0 \leq E \leq 49$$

### Main Test Set

$$1 \leq B \leq 2000$$

$$20 \leq L \leq 2000$$

### Bonus Test Set

$$1 \leq B \leq 10^8$$

$$20 \leq L \leq 10^8$$

# Sample Test Cases

## Sample Input

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```
5
20 200 10
80 170 40
100 20 5
40 100 10
15 20 30
```

## Sample Output

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```
4
4
1
3
0
```

## Sample Explanations

For test case #1, this person was born  $\mathbf{B} = 20$  years ago and will live  $\mathbf{L} = 200$  years in total, or 180 more years. Since the next Era Meteor Shower will occur in  $\mathbf{E} = 10$  years, the last Era Meteor Shower was 40 years ago—before they were born. Throughout the course of their life, they will see their first Era Meteor Shower in 10 years, their second in 60 years, their third in 110 years, and their fourth in 160 years.

For test case #2, this person was born  $\mathbf{B} = 80$  years ago and will live  $\mathbf{L} = 170$  years in total. The next Era Meteor Shower will occur in  $\mathbf{E} = 40$  years, so they've seen 2 Era Meteor Showers up to this point—10 years ago and 60 years ago. They will see 2 more Era Meteor Showers throughout the rest of their life: one in 40 years, and another in 90 years—in the year of their death.

For test case #3, this person was born  $\mathbf{B} = 100$  years ago and lived  $\mathbf{L} = 20$  years in total. Since the next Era Meteor Shower will occur in  $\mathbf{E} = 5$  years, we know that over the course of their life they saw 1 Era Meteor Shower 95 years ago.

For test case #4, this person was born  $\mathbf{B} = 40$  years ago and will live  $\mathbf{L} = 100$  years in total. Since the next Era Meteor Shower will occur in  $\mathbf{E} = 10$  years, we know that over the course of their life they will see 3 meteor showers: one 40 years ago in the year of their birth, one in 10 years, and another in 60 years in the year of their death.

For test case #5, the next Era Meteor Shower will occur in  $\mathbf{E} = 30$  years, and the last Era Meteor Shower happened 20 years ago. Because this person was born  $\mathbf{B} = 15$  years ago and will live  $\mathbf{L} = 20$  years in total, they will never see an Era Meteor Shower in their life.

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