Progression

Given three numbers, find out if they from arithmetic progression, geometric progression, both, or none.

[redacted]

Input

First line contains the number of test cases T (T ≤ 50). Then T lines follow, each containing three integers n1, n2, n3 where 1 ≤ n1, n2, n3 ≤ 1000.

[redacted] T (T ≤ 50)[redacted] n1, n2, n3[redacted] 1 ≤ n1, n2, n3 ≤ 1000.

Output

For each test case, print a line of the following format: “Case X: <string>” where X is the case number starting from 1, and <string> must be replaced with one of the following four strings: “None”, “Arithmetic Progression”, “Geometric Progression”, “Both”, without quotes obviously, depending on your result. Check sample input output section for more details.

[redacted] “Case X: <string>”[redacted] X [redacted] <string> [redacted] “None”, “Arithmetic Progression”, “Geometric Progression”, “Both”([redacted])
[redacted]

Example

Input:

```
4
1 2 5
1 3 5
2 4 8
2 2 2
```

Output:

```
Case 1: None
Case 2: Arithmetic Progression
Case 3: Geometric Progression
Case 4: Both
```