You are in a car and going at the speed of u m/s. Your acceleration a is constant. After a particular time t, your speed is v m/s and your displacement is s. Now you are given some (not all of them) values for the given variables. And you have to find the missing parameters.

Input

The input file may contain multiple test cases. Each test case can be one of the

1 u v t
2 u v a
3 u a s
4 v a s

Input will be terminated by a single '0'.

Output

For each case of input you have to print one line containing the case number and

If 1 u v t are given then print s and a
If 2 u v a are given then print s and t
If 3 u a s are given then print v and t
If 4 v a s are given then print u and t

Check the samples for more details. You can assume that the given cases will not evaluate to an invalid situation. Use double for all calculations and output all floating point numbers to three decimal places.

Sample Input

```
1 10 5 2.0
1 5 10.0 2
2 10 11 2
3 5 1 6
4 5.0 -1 6
0
```

Sample Output

```
Case 1: 15.000 -2.500
Case 2: 15.000 2.500
Case 3: 5.250 0.500
Case 4: 6.083 1.083
Case 5: 6.083 1.083
```