Two graceful skaters, Jennie and Maude, race each other along a track one mile long. However, they start from opposite ends of the track, and skate towards the other's starting point. Because of a strong wind, Jennie receives an important advantage that helps her fnish the race two and a half times as quick as Maude. Maude fnished the race six minutes later. What was the time of each of them skating the mile?

Jennie and Maude skating

Assume that the race always happens in a track one mile long, and that the skaters always maintain constant speeds. Let v_J be Jennie's speed, and v_M Maude's speed. We will call r the ratio between the two speeds—that is, $r = v_J v_M$. Let t be the time in minutes between the moment when Jennie fnished the race and the moment when Maude did the same. Given the values r and t, determine the time that each skater took to complete the race.

Input

Input starts with a positive integer T, that denotes the number of test cases.

Each test case contains two real numbers: r and t, as described above. Each number will be presented with two digits after the decimal point.

$T \leq 5000; 1 < r \leq 10; 0 < t \leq 30$

Output

For each test case, print the case number, followed by two real numbers: the time in minutes of Jennie and Maude to complete the race, in that order. Print these numbers with exactly three digits after the decimal point.

Sample Input

```
2
2.50 6.00
1.88 3.33
```

Sample Output

```
Case 1: 4.000 10.000
Case 2: 3.784 7.114
```