While driving a speedy pony, a young boy went around a sharp turn at a gait which threatened an upset to the pony cart, as well as to his father's nerves. Fortunately no accidents occurred, and after some experimentation, the following information was gathered:

In turning the pony cart around within a ring of a certain diameter, which might be said to be reasonably safe, it was found that the outer wheels made two turns to the inner wheels one; the wheels were fxed at the statutory distance of fve feet apart on the axletree. The problem is to guess the circumference of the track described by the outer wheels in making the turn.

THE PONY CART PROBLEM
BY Sam Loyd
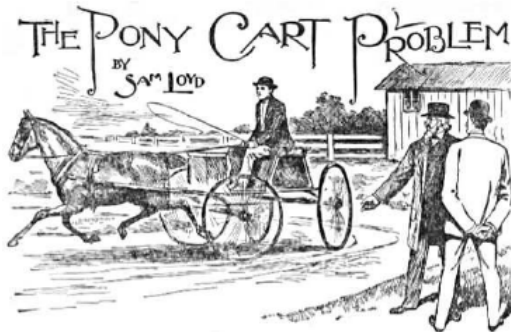
What is the circumference of the outer track?

Assume that the tracks marked on the foor are perfectly circular, that the distance between a wheel on one side and its opposite on the other side is D feet, and that for one turn of the inner wheels, the outer wheels make N turns. Determine the circumference of the circle formed by the outer wheels.

Input

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

Each test case is described by the two real numbers D and N in the same line. These numbers are always given with two digits after the decimal point.

$T \leq 1000; 3 \leq D \leq 10; 1 < N \leq 10$

Output

For each test case, print the case number, followed by the circumference of the outer tracks (in feet), with exactly three digits after the decimal point.

Sample Input

```
3
5.00 2.00
4.20 1.44
8.03 2.01
```

Sample Output

```
Case 1: 62.832
Case 2: 86.365
Case 3: 100.408
```