Find Log

You are Given a Base B & a Number N. You Have to Find Log$_{(B)}$N=X.

Input

frist line of input consist test cases T<=100. and then two integer Base B & Number N. 0<=B,N<=10^18

Output

Print Test Cases Number then (You Have to Find X if you found a value of X>0 (print 5 number after decimal point), else print "Math Error!"),print a new line for each test cases.

Example

Input:
3

2 8

4 16

9 27

Output:

Case 1: 3.00000

Case 2: 2.00000

Case 3: 1.50000

Ex: You should use long long or int64_t