Homework

Digit Product

Input a natural n and output the product of its *nonzero* digits.

Input	Output
45947	5040
301	3
170009	63

Largest Power of 3

Given a natural number N, output the largest integer power of 3 which does not exceed N.

9	9
100	81
500	243
1	1

Triangle

You are given three whole numbers a, b, and c. If there doesn't exist a non-degenerate triangle with such sides, output "No Triangle". If the triangle exists and all its angles are acute, output "Acute Triangle". If the triangle exists and has a right angle, output "Right Triangle". If the triangle exists and has an obtuse angle, output "Obtuse Triangle."

Sample Input	Sample Output
4 3 5	Right Triangle
2 1 1	No Triangle
2 7 8	Obtuse Triangle
4 4 4	Acute Triangle

The Root of the Number

The root of a number is
- the sum of its digits if that sum is less than 10
- the root of the sum of its digits otherwise.

Let's consider 78996. The sum of its digits is 39. Since it's not less than 10, we have to find the root of 39. The sum of its digits is 12. Still not less than 10, so repeating again, we add the digits again and get 3, which is finally less than 10. So the root of 78996 is 3. Given a natural number N, find its root, outputting intermediary results in the process, as shown in the samples.

78996	78996 39 12 3
16	16 7

55	55 10 1

Number Of Divisors

Input a positive x. Find the number of divisors of that x. (Hint: you can check if y is a divisor for x by checking x%y == 0)

Input	Output
1	1
3	2
10	4

Quadratic Equation

Input three real numbers a, b, c and solve the equation $ax^2+bx+c=0$. Output an information about whether the equation is

1. Quadratic equation
2. Non-quadratic equation

For quadratic equations output the value of it's discriminant And in any case output the number of solutions, and the solutions themselves. Follow the examples below.

D = b * b - 4 * a * c

X1,2 = (-b +- sqrt(D)) / 2 * a

Sample Input	**Sample Output**
1.5 -2 4	Quadratic equation Discriminant: -20 No Solutions

0 0 7	Non-quadratic equation No Solutions
0 -2 1	Non-quadratic equation One solution: 0.5
1 0 -1	Quadratic equation Discriminant: 4 Two solutions: 1 -1
0 0 0	Non-quadratic equation Infinite solutions