

Product of couples

Write a program that, given **n** pairs of real numbers, counts those that generate a product negative, positive, or equal to zero without multiplying.

Input

The first line contains the number **N**.

The other lines contains the couples divided by space " ".

Output

The first line contains the total couples that generate a negative product.

The second line contains the total couples that generate a positive product.

The third line contains the total couples that generate a equal zero product.

Sample input

Sample output

3 4 0 -4 5 -5 -5	1 1 1
2 34 5 34 -5	1 1 0
5 20 3 213 3 -23 -2 -23 4 34 -4	3 2 0