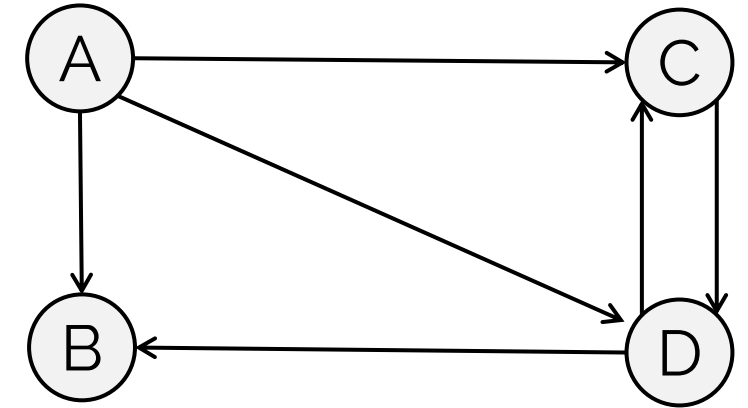


Given the pairs of vertices associated with the edges of a directed graph, find the degree of each vertex. In the graph shown, the degree of the vertices are:  $A=3$ ,  $B=2$ ,  $C=3$  and  $D=4$ . No more than one edge connecting the same vertices with the same direction is presented. No loops are presented.



## Input

The first line of the input indicates the amount of test cases. Following that line, the input consists of several lines of strings that contains the edges that connect each vertex of the graph. Each line is a different graph.

## Output

The output must be several strings with the degree of each vertex of the given graphs.

## Sample input

2

A:BCD;B::C:D;D:BC

A:B;B:C;C:AB

## Sample output

A=3, B=2, C=3, D=4

A=2, B=3, C=3