B: Counting Weird Permutations

Let n be a positive integer. Order the binary strings of length n first by increasing number of 1's and second by increasing numerical order. Consider the case $n = 6$. The string 000111 comes after 101000 because there are 3 1's in 000111 but only 2 in 101000. Furthermore, 101000 comes after 100100 because the number of 1's is the same and 101000 is a larger binary number than 100100. Given two length n bit strings, you are to determine how many numbers there are between and including them in the ordering.

Input

Input may consist of multiple cases. Each case will consist of a single line as two strings of 0's and 1's. The strings in a case will have the same length, which will be no more than 60. End of input will be indicated by a line with both strings having the numerical value 0. There may be arbitrary white space as delimiters.

Output

For each case, display the case number followed by the answer, formatted as in the sample. Use single spaces as delimiters.

Sample Input

```
000  100
100  000
0001    0100
   0001  1001
0100    1011
00  00
```

Sample Output

```
Case 1: 4
Case 2: 4
Case 3: 3
Case 4: 8
Case 5: 10
```