

# Problem A:

## Hashmat the brave warrior

Hashmat is a brave warrior who with his group of young soldiers moves from one place to another to fight against his opponents. Before fighting he just calculates one thing, the difference between his soldier number and the opponent's soldier number. From this difference he decides whether to fight or not. Hashmat's soldier number is never greater than his opponent.

### Input

The input contains two integer numbers in every line. These two numbers in each line denotes the number of soldiers in Hashmat's army and his opponent's army or vice versa. The input numbers are not greater than  $2^{32}$ . Input is terminated by End of File.

### Output

For each line of input, print the difference of number of soldiers between Hashmat's army and his opponent's army. Each output should be in separate line.

### Sample Input:

```
10 12
10 14
100 200
```

### Sample Output:

```
2
4
100
```

# Problem B: WERTYU



A common typing error is to place the hands on the keyboard one row to the right of the correct position. So "Q" is typed as "W" and "J" is typed as "K" and so on. You are to decode a message typed in this manner.

Input consists of several lines of text. Each line may contain digits, spaces, upper case letters (except Q, A, Z), or punctuation shown above [except back-quote (^)]. Keys labelled with words [*Tab*, *BackSp*, *Control*, etc.] are not represented in the input. You are to replace each letter or punctuation symbol by the one immediately to its left on the QWERTY keyboard shown above. Spaces in the input should be echoed in the output.

## Sample Input

O S, GOMR YPFSU/

## Output for Sample Input

I AM FINE TODAY.

# Problem C:

## Gondwanaland Telecom

Gondwanaland Telecom makes charges for calls according to distance and time of day. The basis of the charging is contained in the following schedule, where the charging step is related to the distance:

Charging Step (distance)	Day Rate 8am to 6pm	Evening Rate 6pm to 10pm	Night Rate 10pm to 8am
A	0.10	0.06	0.02
B	0.25	0.15	0.05
C	0.53	0.33	0.13
D	0.87	0.47	0.17
E	1.44	0.80	0.30

All charges are in dollars per minute of the call. Calls which straddle a rate boundary are charged according to the time spent in each section. Thus a call starting at 5:58 pm and terminating at 6:04 pm will be charged for 2 minutes at the day rate and for 4 minutes at the evening rate. Calls less than a minute are not recorded and no call may last more than 24 hours.

Write a program that reads call details and calculates the corresponding charges.

### Input and Output

Input lines will consist of the charging step (upper case letter 'A'..'E'), the number called (a string of 7 digits and a hyphen in the approved format) and the start and end times of the call, all separated by exactly one blank. Times are recorded as hours and minutes in the 24 hour clock, separated by one blank and with two digits for each number. Input will be terminated by a line consisting of a single #.

Output will consist of the called number, the time in minutes the call spent in each of the charge categories, the charging step and the total cost in the format shown below.

### Sample input

```
A 183-5724 17 58 18 04  
#
```

### Sample output

```
183-5724   10   16   22   28 31   39  
           2     4     0   A     0.44
```

# Problem D:

## Permutation Arrays

In many computer problems, it is necessary to permute data arrays. That is, the data in an array must be re-arranged in some specified order. One way to permute arbitrary data arrays is to specify the permutations with an index array to point out the position of the elements in the new array. Let  $x$  be an array that is to be permuted and let  $x'$  be the permuted array. Then, we have the relationship between  $x$  and  $x'$  that  $x'_{p_i} = x_i$ .

### Input

The input begins with a single positive integer on a line by itself indicating the number of the cases following, each of them as described below. This line is followed by a blank line, and there is also a blank line between two consecutive inputs.

Each input set will contain two lines of numbers. The first line will be an index array  $p$  containing the integers  $1 \dots n$ , where  $n$  is the number of integers in the list. The numbers in the first line will have been permuted in some fashion. The second line will contain a list numbers in floating point format.

### Output

For each test case, the output must follow the description below. The outputs of two consecutive cases will be separated by a blank line.

The output for this program will be the list of floating point numbers from the input set, ordered according to the permutation array from the input file. The output numbers must be printed one per line in the same format in which they each appeared in the input file.

### Sample Input

```
1

3 1 2
32.0 54.7 -2
```

### Sample Output

```
54.7
-2
32.0
```