

**Pick-a-Number**

C
4
5
6
7

B
2
3
6
7

A
1
3
5
7

**PROBLEM:** Pick a number from 1 to 7. Don't tell the number. Now tell in which column(s) the number appears. Write a program that will print the number. The interesting part of this problem is finding how the numbers got in the columns in the first place.

All the numbers in Column A, when converted to binary, have a 1 in place value position  $2^0$ . All the numbers in Column B, when converted to binary, have a 1 in place value position  $2^1$ . All the numbers in Column C, when converted to binary, have a 1 in place value position  $2^2$ . Therefore if you picked the number 6, and noted it appears in columns B and C, then its representation must be 110 in column CBA order. Converting back to decimal, the number is 6.

**INPUT:** There will be 5 lines of input. Each line will contain the following: a positive integer that will give the maximum number that can be selected. Example: 7 would indicate to pick a number from 1 to 7. A second positive integer will give the number of columns in which the picked number appears. The column letters, not necessarily in order, will follow.

**OUTPUT:** For each line of input print the number picked and how many numbers must appear in the column given by the first letter in the column list. The last number in each column will either be the maximum number as given by the first element on the input line or the largest number less than the maximum that has a 1 in the place value designated by that column.

**SAMPLE INPUT**

1. 7, 2, B, C
2. 15, 1, A
3. 20, 4, D, C, B, A
4. 40, 3, E, D, A
5. 130, 4, F, D, E, G

**SAMPLE OUTPUT**

1. 6, 4
2. 1, 8
3. 15, 8
4. 25, 16
5. 120, 64