

3864 Base- d Times

Your little sister Annie has just learned about different number bases. When you ask her what time it is, she tells you it's 5. "Five?" you ask. "Yes," she explains, since the clock shows "1:01" which, she proudly explains, "is 5 in base-2." Since you have to live with your sister and know she's going to learn more bases, you decide to write a program to make sense of her answers.

Your program should find all the times in an inclusive range that could be considered to valid numbers in a given base (ignoring the colon). For example, in base-2, in the inclusive time range between 1:00 and 2:00, the times 1:00, 1:01, 1:10, and 1:11 can be interpreted as the numbers 100, 101, 110, and 111 in base-2 (i.e. 4, 5, 6, and 7 in decimal).

Input

The input to the program will consist of one or more data sets. Each data set will be on a single line. It will begin with the base, d ($1 < d \leq 10$), to use in examining clock times. There will then be 2 times, the start time and the end time, each in the format ' $hh:mm$ ' or ' $h:mm$ ', with $0 \leq h \leq 9$, $10 \leq hh \leq 23$, and $0 \leq mm \leq 59$. There will be one or more spaces between these values. All times are assumed to be in the same day and the end time will be later than the start time.

The last data set will consist of just the value '0'. This line should not be processed.

Output

For each data set, have an initial line giving the range of times, in the format shown in the Sample Output section. Then have a list of all decimal integers that correspond to times in the inclusive range that are valid base- d numbers. These numbers should be listed in increasing order, one to a line, and indented by three spaces.

Have one blank line after the output for each data set.

Sample Input

```
2 1:00 4:00
3 1:15 1:45
0
```

Sample Output

```
1:00 to 4:00:
  4
  5
  6
  7

1:15 to 1:45:
 15
 16
 17
```