

ACM North Central North America Programming Contest  
November 10, 2001

**Problem 4: The Temperature Table**

A scientist is conducting an experiment that requires periodic recording of the temperature of a solution. Unfortunately, the only temperature measurement device reports the temperature in degrees Fahrenheit, and he must record the temperature in Centigrade. To simplify this task, you have been asked to provide a table with two columns, the left one with temperatures in Fahrenheit, and the right one with temperatures in Centigrade. Every integral temperature in a given range of Fahrenheit temperatures is to appear in the table, along with the integral Centigrade temperatures in the same range, and the columns are to be ordered from low to high. Only when the Fahrenheit and Centigrade temperatures are equal should there be two entries in the same row.

The conversion between Fahrenheit and Centigrade is given by the following formulas:

$$^{\circ}F = \frac{9}{5}^{\circ}C + 32 \qquad ^{\circ}C = \frac{5}{9}(^{\circ}F - 32)$$

An example will clarify the table organization. Suppose the scientist asked for a table with temperatures in the range 30 to 34 degrees Fahrenheit. The following table would be produced:

**Table 1: 30 to 34 degrees Fahrenheit**

Fahrenheit	Centigrade
30	
	-1
31	
32	0
33	
	1
34	

The left column of the table contains every integral temperature in the range 30 to 34 degrees Fahrenheit. Since 32 °F is exactly 0 °C, both temperatures appear in the same row. There is no integral Fahrenheit equivalent for -1 °C or 1 °C, so they appear on lines by themselves, as do the other integral Fahrenheit temperatures. Note that -1 °C is between 30 °F and 31 °F.

**Input**

The input will contain multiple cases. The input for each case consists of a pair of integers *low* and *high*, with *low* less than *high*. A pair of integers follows the last case, with the first number larger than the second. No Fahrenheit or Centigrade temperature will require more than four columns for its display.

**Output**

For each input case, display the table number (they are numbered sequentially starting with one), and the desired table, with appropriate column headings. Leave one blank line between each table. The format shown in the example above and in the samples below should be followed closely.

### Sample Input

50 54  
210 215  
1 0

### Expected Output

Table 1: 50 to 54 degrees Fahrenheit  
Fahrenheit Centigrade

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50	10
51	
	11
52	
53	
	12
54	

Table 2: 210 to 215 degrees Fahrenheit  
Fahrenheit Centigrade

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210	
	99
211	
212	100
213	
	101
214	
215	