PROBLEM 3

Consider the following algorithm to generate a sequence of numbers. Start with an integer *n*. If *n* is even, divide by 2. If *n* is odd, multiply by 3 and add 1. Repeat this process with the new value of *n*, terminating when *n* = 1. For example, the following sequence of numbers will be generated for *n* = 22:

22 11 34 17 52 26 13 40 20 10 5 16 8 4 2 1

It is *conjectured* (but not yet proven) that this algorithm will terminate at *n* = 1 for every integer *n*. Still, the conjecture holds for all integers up to at least 1*,* 000*,* 000. For an input *n*, the *cycle-length* of *n* is the number of numbers generated up to and *including* the 1. In the example above, the cycle length of 22 is 16. Given any two numbers *i* and *j*, you are to determine the maximum cycle length over all numbers between *i* and *j*, *including* both endpoints.

Input

The input will consist of a series of pairs of integers *i* and *j*, one pair of integers per line. All integers will be less than 1,000,000 and greater than 0.

Output

For each pair of input integers *i* and *j*, output *i*, *j* in the same order in which they appeared in the input and then the maximum cycle length for integers between and including *i* and *j*. These three numbers should be separated by one space, with all three numbers on one line and with one line of output for each line of input.

Sample Input

1 10
100 200
201 210
900 1000

Sample Output

1 10 20
100 200 125
201 210 89
900 1000 174