Question 1

**Problem Description:**

Each player in a tournament plays six games. There are no ties. The tournament director places the players in groups based on the results of games as follows:

• if a player wins 5 or 6 games, they are placed in Group 1;

• if a player wins 3 or 4 games, they are placed in Group 2;

• if a player wins 1 or 2 games, they are placed in Group 3;

• if a player does not win any games, they are eliminated from the tournament.

Write a program to determine which group a player is placed in.

**Input Specification**: The input consists of six lines, each with one of two possible letters: W (to indicate a win) or L (to indicate a loss).

**Output Specification**: The output will be either 1, 2, 3 (to indicate which Group the player should be placed in) or -1 (to indicate the player has been eliminated).

**Sample Input**

W

L

W

W

L

W

**Output for Sample Input**

2

Question 2

**Problem Description:**

Magic Squares are square arrays of numbers that have the interesting property that the numbers in each column, and in each row, all add up to the same total. Given a 4 × 4 square of numbers, determine if it is magic square.

**Input Specification**

The input consists of four lines, each line having 4 space-separated integers.

**Output Specification**

Output either magic if the input is a magic square, or not magic if the input is not a magic square.

**Sample Input**

16 3 2 13

5 10 11 8

9 6 7 12

4 15 14 1

**Output for Sample Input**

magic

Question 3

**Problem Description:**

A palindrome is a word which is the same when read forwards as it is when read backwards. For example, mom and anna are two palindromes. A word which has just one letter, such as a, is also a palindrome. Given a word, what is the longest palindrome that is contained in the word? That is, what is the longest palindrome that we can obtain, if we are allowed to delete characters from the beginning and/or the end of the string?

**Input Specification**

The input will consist of one line, containing a sequence of at least 1 and at most 40 lowercase letters.

**Output Specification**

Output the total number of letters of the longest palindrome contained in the input word.

**Sample Input**

banana

**Output for Sample Input**

5

Question 4

**Problem Description:**

Fiona commutes to work each day. If there is no rush-hour traffic, her commute time is 2 hours. However, there is often rush-hour traffic. Specifically, rush-hour traffic occurs from 07:00 (7am) until 10:00 (10am) in the morning and 15:00 (3pm) until 19:00 (7pm) in the afternoon. During rush-hour traffic, her speed is reduced by half. She leaves either on the hour (at XX:00), 20 minutes past the hour (at XX:20), or 40 minutes past the hour (at XX:40). Given Fiona’s departure time, at what time does she arrive at work?.

**Input Specification**

The input will be one line, which contains an expression of the form HH:MM, where HH is one of the 24 starting hours (00, 01, . . ., 23) and MM is one of the three possible departure minute times (00, 20, 40).

**Output Specification**

Output the time of Fiona’s arrival, in the form HH:MM.

**Sample Input**

07:00

**Output for Sample Input**

10:30