

Problem J4: Arrival Time

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 1

05:00

Output for Sample Input 1

07:00

Explanation for Output for Sample Input 1

Fiona does not encounter any rush-hour traffic, and leaving at 5am, she arrives at exactly 7am.

Sample Input 2

07:00

Output for Sample Input 2

10:30

Explanation for Output for Sample Input 2

Fiona drives for 3 hours in rush-hour traffic, but only travels as far as she normally would after driving for 1.5 hours. During the final 30 minutes (0.5 hours) she is driving in non-rush-hour traffic.

Sample Input 3

23:20

Output for Sample Input 3

01:20

Explanation for Output for Sample Input 3

Fiona leaves at 11:20pm, and with non-rush-hour traffic, it takes two hours to travel, so she arrives at 1:20am the next day.