**DWITE Online Computer Programming Contest**
**February 2005**

**Problem 5**

# Tsunami Speed

The recent Indian Ocean earthquake was an undersea earthquake that generated a tsunami that was among the most devastating in modern history. The resulting tsunami devastated the shores of Indonesia, Sri Lanka, South India, Thailand and other countries with waves of up to 15 m high. It caused serious damage and deaths as far as the east coast of Africa, 8 000 km away from the epicentre. This disaster has raised the awareness of tsunamis and their destructive powers to many people around the world.

The approximate speed of a tsunami, c, is given by the formula

$$c = \sqrt{g \times h}$$

where

g = 9.8 m/s$^2$ = acceleration due to gravity
h = water depth in metres
c = wave speed in metres per second

The input file (**DATA51.txt** for the first submission and **DATA52.txt** for the second submission) will contain 5 sets of data. Each set of data contains two lines. The first line contains, h, 500 <= h <= 7000, the average depth in metres of the water and the second line contains, d, 0 < d <= 10000, the distance in kilometres that the tsunami wave will travel. h and d will both be integer values.

The output file (**OUT51.txt** for the first submission and **OUT52.txt** for the second submission) will contain five lines of data. Each line will contain the time in hours, minutes and seconds (to the nearest second) that the tsunami wave will take to travel the distance, d. See the sample output for proper formatting and wording.

| **Sample Input (3 sets of data only)** | **Sample Output** |
|---|---|
| 2500<br>225<br>3500<br>2020<br>4500<br>8000 | 0 hour(s) 23 minute(s) 57 second(s)<br>3 hour(s) 1 minute(s) 47 second(s)<br>10 hour(s) 34 minute(s) 55 second(s) |