1806ICT Programming Fundamentals

Data Types, Operators & Expressions

1. Write a program that asks the user to enter two parameters: the `area` of a rectangle (in square m), and the `width` of the rectangle (in m). The program will compute and display the `height` of the rectangle (in m). Assume that the `area`, `width`, and `height` are type double variables.

   Sample run:

Input		Output
Area (square m)	Width (m)	Height (m)
5.25	2.5	2.1

2. Write a program that converts an angle in degrees to radians. You can use the following formula:

```
Radians = (Degrees * M_PI)/180.0
```

   `M_PI` is a mathematical constant for π, defined in the <math.h> library, so you will need to `#include <math.h>` in your program.

   Sample run:

Input	Output
Degrees	Radians
180.0	3.141593
92.35	1.611812

3. Write a program which accepts a time interval in seconds and prints the equivalent time in hours, minutes, and seconds. One hour is 3600 seconds and one minute is 60 seconds.

   Sample Run:

Input	Output		
Seconds	Hours	Minutes	Seconds
3600	1	0	0
5000	1	23	20

4. Given a 24 hour time of day as [hours minutes seconds], add a time interval which is also specified as [hours minutes seconds]. Write a program to compute this addition operation, and print the resultant 24 hour time of day in [hours minutes seconds].

   Sample Run:

Input						Output		
24 hour time of day			Time interval			24 hour time of day		
Hours	Mins	Secs	Hours	Mins	Secs	Hours	Mins	Secs
1	0	0	1	30	12	2	30	12
1	15	50	2	15	30	3	31	20
13	24	30	2	40	40	16	5	10

5. Given a 12 hour time of day as hours minutes seconds pm, add a time interval which is specified as hours minutes seconds. The input pm is 0 for morning and 1 afternoon.

Input							Output			
12 hour time of day				Time interval			12 hour time of day			
Hours	Mins	Secs	pm	Hours	Mins	Secs	Hours	Mins	Secs	pm
1	24	30	1	2	40	40	4	5	10	1