Module 2:

C++ Basics

COP2274

In-class Assignments

UF UNIVERSITY of FLORIDA

M2A Curved final grade calculator

Write a program that calculates and displays a student's curved final grade after prompting the user inputs as shown in the test case. Your program must apply a square root curve to the final grade that corresponds to the following weights and display the output to 2 decimal places as shown in the test case.

Assignments	Percentage of Final Grade
HW assignments (4)	17%
Quizzes (3)	21%
Tests (3)	62%

M2A Curved final grade calculator

Notes:

- *The square root curved grade can be calculated as follows.*

$$Grade_{curved} = 10 \times \sqrt{Grade_{raw}}$$

- *You can use **sqrt** function in the library **cmath**.*

Test case

```
Enter 4 homework grades, separated by a space: 82.5 92 89 93.3
Enter 3 quiz grades, separated by a space: 100 94.7 84
Enter 3 test grades, separated by a space: 83.2 75.9 91
Student's final curved grade: 92.93
```

M2B Arithmetic using mixed data types

Write a program that calculates and displays addition, subtraction, multiplication, and division after prompting the 2 user inputs (an integer and a floating-point number) as shown in the test case. Your program must display the first set of the results as floating-point numbers to 3 decimal places and the second set of the results as integers as shown in the test case.

Hint:

- *Remember how to change a floating-point number (e.g. double) to an integer (or how to typecast) in C++?*

  Use static_cast<int>(double)

M2B Arithmetic using mixed data types

Test case

```
Enter an integer and a floating-point number, seperated by a space: 32 3.9

Output to double type:
32 + 3.900 = 35.900
32 - 3.900 = 28.100
32 * 3.900 = 124.800
32 / 3.900 = 8.205

Output to integer type:
32 + 3.900 = 35
32 - 3.900 = 28
32 * 3.900 = 124
32 / 3.900 = 8
```

M2C Time conversion calculator

Write a program that reads an integer from the user for a number of seconds, converts to the equivalent weeks, days, hours, minutes, and seconds, and then displays them as shown in the test case. Your program should read another integer from the user for a number of seconds, convert directly to years, and display the output to 5 decimal places as shown in the test case. *Assume that there are exactly 365 days in a year.*

Hint:

You can use the modulo or remainder operator (%) to find the days, hours, minutes, and seconds.

M2C Time conversion calculator

Test case

```
Enter the number of seconds: 788645
788645 seconds is 1 week(s), 2 day(s), 3 hour(s), 4 minute(s), and 5 second(s).

Enter the number of seconds: 3380521
3380521 seconds converted to years is 0.10720 year(s).
```