Practice Problems - Set 1

#1. Write a program that simply prints "I am going to love this course" to the screen.

#2. Write a program that asks a user to enter two integers, reads those values, and prints them onto the screen. For example:

> Enter two integers: **12 177**
> The user entered 12 and 177

#3. Write a program that asks a user for a unit price and the number of items, and calculates a total cost. For example:

> Cost? **1.43**
> How many? **9**
> Total cost is $12.87.

#4. Write a program that asks a user for a temperature in degrees Celsius, and prints the equivalent temperature in degrees Fahrenheit (multiply C by 1.8, then add 32). For example:

> Enter a Celsius temperature: **30**
> Fahrenheit equivalent is: **86**

#5. Write a "cost of gasoline" calculator. Ask a user to input three pieces of information: the number of km being driven, the fuel efficiency of the vehicle (litres/100 km), and the cost of gasoline (cents/litre). Output the cost of gasoline to make the trip. For example:

> How far (km)?: **67**
> Fuel efficiency (litres/100 km)?: **5.5**
> Cost of gas (cents/litre)?: **69.9**
>
> Cost of the trip is: $2.58

#6. Write a program to reverse a two digit number. For example:

> Enter a two digit number: **53**
> That number reversed is: **35**

Make sure that it works even for single digit numbers (i.e. the reverse of 8 is 80).

[Note that I expect you to use scanf to read a single int (in this case 53), and then manipulate that value to produce another int (35), that you'll print to the screen. I do not want you to read the two digits 5 and 3 separately, and simply print them in opposite order.]

#7. Write a program to evaluate y = 4x + 3. Ask a user to input any x, and then evaluate y, and present the result to two decimal places. For example:

>Enter x: **3.69**
>The value of y = 4x + 3 is 17.76

#8. Extend the program written previously to flip a three digit number, using the arithmetic operators / and %. For example:

>Enter a positive number less than 1000: **177**
>That number flipped is 771

As before, make sure it works even for one and two digit numbers. For example, 37 flipped is 730, and 8 flipped is 800.

#9. Write a program that asks a user for a positive number, and then calculates the minimum number of quarters, dimes, nickels, and pennies needed to make up that amount. For example:

>Enter an amount: **67**
>
>2 quarter(s), 1 dime(s), 1 nickel(s), 2 penny(ies)

#10. Write a program that asks a user for a floating point number (a float or double) and that then prints two values: the number truncated to the first decimal place, and the value rounded to the first decimal place. For example:

>Enter a number: **4.158**
>Truncated to one decimal place: 4.1
>Rounded to one decimal place: 4.2

The idea here is that you read the value that the user enters, and then calculate the two other values, and print those out (i.e. don't simply use printf to generate this result).

#11. Write a little trigonometry program. Ask a user for an angle, specified in degrees. Then print the sine, cosine, and tangent of that angle. (Remember: these functions expect radians, not degrees, and so convert degrees into radians by multiplying by $\pi/180$.)   For example:

>Enter an angle: **60.**
>sin(60.00) is 0.866025
>cos(60.00) is 0.500000
>tan(60.00) is 1.732051