

Lab 3 – assigned 2/5, due Friday 2/17 at 11:59:00 pm -

Build a calculator program to perform the following functions (to help you a little, the C++ code to print the user screen is included here):

```
cout << "*****" << endl;
cout << "*    1 - Add          *" << endl;
cout << "*    2 - Subtract      *" << endl;
cout << "*    3 - Multiply      *" << endl;
cout << "*    4 - Divide        *" << endl;
cout << "*    5 - Raise X to the power Y  *" << endl;
cout << "*    6 - Sine ( x )     *" << endl;
cout << "*    7 - Cosine ( x )   *" << endl;
cout << "*" << endl;
cout << "*    0 - Quit          *" << endl;
cout << "*****" << endl;
cout << "Enter a selection, please:    " << endl;
```

Your calculator must:

1. Print the above menu (or one of your own design) and ask the user to select an operation (choices 1 thru 7, or 0). DO NOT change the meaning of input codes (that is: 1 means ADD, 2 means SUBTRACT, and so on...)
2. Based on the user selection, your program must then ask for one or two operands. The operands and the answers will be **doubles**. userChoice will be an **int**.

Hint: here is a code template for processing userChoice with if/else:

```
int userChoice = 0;
cin >> userChoice;

if (userChoice == 0)
{
    // exit the program here
}
else if (userChoice == 1 )
{
    // ask for two more numbers and perform addition here
}
else if (userChoice == 2)
    // etc...
```

3. Perform the operation and store the result inside a variable

Hint: #include the <math.h> library as well as <iostream> at the top of your program. This gives you access to a library of math functions:

```
ans = sin(x); // x, y, and ans are doubles
ans = cos(x);
ans = pow(x,y);
```

You might want to make clear to the user that Cos and Sin are in RADIANS.

4. Print the answer. Your output should look like this:

```
The sum of 4 and 5 is #### 9 ####
```

Important: the #### sequence before and after the number is mandatory.

Hint: your code may look like this:

```
cout << "The sum of " << x << " and " << y << " is " << "#### " << ans << " ####" << endl;
```

5. Repeat until the user selects the QUIT option.

Hint: put the whole thing in a while(true) loop

6. Submit your cpp file via UB Learns

PLEASE READ THIS:

Since we plan to use an automatic grading program to run and test your submission, all of your numerical output must be preceded by "#### " and followed by " ####". If you neglect to do this, you will unavoidably receive a zero on the lab and we will all feel terrible. Please don't forget this step.