Computer Programming Homework #2

Here are some sample programs that can help you complete the homework assignment:

#include <iostream>

using namespace std;

int main () {

int a; // Declare variable

a = 5; // Assign a the value of 5

cout << a; // Outputs a (a is 5)

}

#include <iostream>

using namespace std;

int main () {

int a;

a = 5;

cout << a + 4; // outputs 9.

}

#include <iostream>

using namespace std;

int main () {

int a;

a = 5;

int c = a + 3;

cout << “c: " << c << endl;

// The value of c is 8

}

#include <iostream>

using namespace std;

int main () {

int a;

a = 5;

a = a + 7; // Current Value of A is now = Old Value of A + 7.

// we changed a to be a + 7;

cout << "a: " << a + 7 << endl; // Outputs 19.

}

#include <iostream>

#include <string>

using namespace std;

int main() {

string name;

cout << "Type in a name: \n"; // Prompt the user to enter a name.

cin >> name;

cout << "Current value of the variable called name is: " << name << "\n";

// ^ Outputs the value of name.

cout << "Ok, now type in a different name: \n";

cin >> name;

cout << "Current value of the variable called name is: " << name;

}

Homework Problems

Again, if you need to review C++, here are some helpful links:

http://www.cplusplus.com/doc/tutorial/basic\_io/

<https://www.tutorialspoint.com/cplusplus/cpp_variable_types.htm>

1. **Add two numbers**

Prompt (ask) the user to type in a number.

Then prompt the user to enter a second number.

Output the sum of the numbers.

2) **Concatenate two names**

Prompt the user to enter their first name.

Then, prompt the user to enter their last name.

Output the sum of the names.

3) **Fahrenheit to Celsius Converter**

Prompt the user to enter how many degrees in Fahrenheit.

Output the equivalent degrees in Celsius

NOTE: When declaring the variables Fahrenheit & Celsius, you HAVE to declare them of type Double. NOT int!!

**Remember:**

C = ( F - 32 ) \* 5/9;

OR

celsius = ( fahrenheit - 32) \* (5.0/9.0);

4) **Volume of a rectangular prism**

Prompt the user and ask them to enter the length, width, & height of a rectangular prism.

Output the volume of said prism.

NOTE: Volume = Length \* Width \* Height;

For the past couple of weeks, we’ve been going over these types of problems in class, so IF you’ve been paying attention, these programs should be easy :)

Extra Homework Problem

This problem is a little more challenging than the rest, so that's why I made it optional.

Nonetheless, I still want everyone to at least try to attempt this problem.

My program was short and sweet, just like all of you. So I hope you have fun with it ☺

Many of you have probably heard of this simple math trick. If I told you to pick a random number, after a couple of math operations, I’d always get the same result, so let’s try doing this programmatically.

Write a program that prompts the user to enter a number, and after a series of steps, outputs the result 3

Steps Algebra

Pick a number x

Add five x + 5

Double the result 2(x + 5) or 2x + 10

Subtract 4 2x + 6

Divide by 2 x + 3

Subtract the original number 3

Hint:

You'll need to declare two variables of type double, probably called "current\_value" and "initial\_value".

After you’ve accepted the initial input and set it to the value “initial\_value”, make sure that both variables

hold the same initial value. After that, all the remaining operations should be done on the variable

“current\_value”.

To test your program, you can pick any 4 different starting numbers, and the program will prove that the result will always be 3. Hope you have fun!

NOTE: Don't just output the number 3 and prove that you've written the program.

Prove to me that you’ll be able to do it with arithmetic.