**Introduction to Computer Science**

Homework Exercise # 2

Input / output, operators, basic types

**Remarks**:

* Use meaningful names for variables.
* Write comments if necessary (including a comment before the main program explaining its purpose and operation).
* Questions 1,2,3 should not be submitted.

**Problems**:

1. Here are some code snippets. Determine what will be the output. Then run the code on your computer and make sure you're right!

int a = 5;

int b = 7;

int c = 9;

cout << "a>b? " << (a>b) << endl;

cout << "a+b==c?" << (a+b==c) << endl;

cout << "b-c>=a++?" << (b-c>=a++) << endl;

cout << "a+2!=b? " << (a+2!=b) << endl;

cout << "6 <= 10 && 17 == 18-1? " << (6 <= 10 && 17 == 18-1) << endl;

cout << "2!= 8 / 4-1 || 6 == 5-1?" << (2!=8 / 4-1 || 6 == 5-1) << endl;

cout << "2 <3<4?" << (2<3<4) << endl;

cout << "17 == 17 == 17?" << (17 == 17 == 17) << endl;

cout << "28 && 17?" << (28 && 17) << endl;

cout << "17 && 0?" << (17 && 0) << endl;

int a = 5;

int b = 7;

int c = 0;

cout << "(((a == 5) || (b> 0)) && c>= 0 || a <17):" << (((a == 5) || (b> 0)) && c>= 0 || a <17) << endl;

cout << "(a == 5 || b> 0 && c>= 0 || a <17):" << (a == 5 || b> 0 && c>= 0 || a <17) << endl;

1. Given the following program:

#include <iostream>

using namespace std;

int main ()

{

int a;

int b;

int c;

cout << "give me two numbers please" << endl;

cin >> a >> b;

c = a % b;

b = a + 4;

cout<<"a: "<<a<<"b: "<<b<<"c: "<<c<<endl;

a = b + c \* a;

cout << "a: "<<a<<",a-b: "<<a-b<<",a/b: "<<a/b<< endl;

return 0;

}

What will be the output of the above program for the following inputs (left to right)?

1. 7 12
2. 3 9
3. Display the following characters:

'\n', '\a', '\\', '\t'

What is the output they give?

1. Write a program that will take two integers, a and b, and print the result of the formula:



Explanation - This is the first exercise we submit to the automatic checker.

You must read the instructions carefully and act accordingly! To clarify, the color below in green is the output of the program and yellow the input from the user. Do not forget to use exactly the same uppercase letters, punctuation marks, white space, etc.

The program first prints:

enter two numbers:

Then the user enters two values.

The following line should show the result as follows: c = \_\_\_

For example, for the inputs a = 2, b = 0 the run window will look like this:

enter two numbers:

enter two numbers:

2

0

c=6.5

1. Write a program that asks the user to input two numbers, reads them into variables x and y, and prints them using the line of code:  
    cout << "x =" << x << ", y =" << y << endl;  
   Then you have to swap the data (the value of x will be that of y and vice versa), and then print the same message again  
    cout << "x =" << x << ", y =" << y << endl;  
   (Of course the values ​​will change).  
   Example of the run window:

enter two numbers:

3

5

x=3 ,y=5

x=5 ,y=3

1. Input 2 whole numbers and print their sum, difference between the first and second, their product, and the division of the first with the second. (Note that in the division we want the real answer - that is, if the numbers were 7 and 2 then the result should be 3.5). Printing will be done as follows:  
    num1 + num2 = result.  
   (e.g., for input 5,6 it will print 5 + 6 = 11).  
     
   The program prompts the user by printing the following line:  
    enter two numbers:  
   Then, the user enters two whole numbers ​​one after the other with ENTER or space between them.  
     
   Example of the run window:

enter two numbers:

8

4

8+4=12

8-4=4

8\*4=32

8/4=2

1. Write a program that receives a three-digit positive number, (i.e., a number between 100 and 999 inclusive) and prints the sum of its digits.  
     
   The program prompts the as follows:  
    enter a three digit number:  
     
   and then reads a three-digit number. It then calculates the sum of the digits and prints:  
    the sum is: \_\_\_  
   where \_\_\_ is their sum.

As an example of the run window:

enter a three digit number:

715

the sum is: 13

1. Write a program that reads the take-off time of a plane in the format: hours, minutes, seconds, and the flight time in the same format, and prints landing time.  
   Six appropriate entries should be typed in the run window. First the program will ask for output for take-off time by printing the following line:  
    enter flight takeoff:  
   and then read in: take-off hour, take-off minutes, take-off seconds.  
   Then the program will request the flight duration by printing the next line:  
    enter flight duration:  
   It then reads the flight duration hours, minutes, and seconds. Finally, it prints the flight arrival in the following format:  
    flight arrival is:  
    HH: MM: SS  
   For example for a flight that departs at 21:45:33 from Sde Dov and takes 0:55:10 to arrive in Eilat:

enter flight takeoff:

21

45

33

enter flight duration:

0

55

10

flight arrival is:

22:40:43