# Lab. (2)
## C++ Basics

## Answer the following questions

### Question One:

Write C++ statement(s) that accomplish the following.

    a) Declare int variables x and y. Initialize x to 25 and y to 18.

    b) Declare and initialize an int variable temp to 10 and a char variable ch to 'A'.

    c) Update the value of an int variable x by adding 5 to it.

    d) Declare and initialize a double variable pay Rate to 12.50.

    e) Copy the value of an int variable first Num into an int variable temp Num.

    f) Swap the contents of the int variables x and y. (Declare additional variables, if necessary.)

    g) Suppose x and y are double variables. Output the contents of x , y , and the expression x+12/y-18.

    h) Declare a char variable grade and set the value of grade to 'A'.

    i) Declare int variables to store four integers.

    j) Copy the value of a double variable z to the nearest integer into an int variable x.

### Question Two:

Write each of the following as a C++ expression.

$$(b2 - 4ac)/2a$$

### Question Three:

Write a program that produces the following output:

```
************************
* Programming Assignment 1 *
* Computer Programming, I    *
* Author: Dr Ayman            *
* Due Date: Thursday, oct.27 *
************************
```

### Question Four:

Write a C++ statement that stores the average of num1, num2, and num3, into average.

### Question Five:

Repeat question 4 by declaring num1, num2, and num3, and average of type double. Store 75.35 into num1, -35.56 into num2, and 15.76 into num3.

### Question six:

Write C++ statements that declare and initialize the following named constants: SECRET of type int initialized to 11 and RATE of type Double initialized to 12.50.

### Question Seven:

Write a C++ statement that multiplies the value of num1 by 2, adds the value of num2 to it, and then stores the result in newNum. Then, write a C++ statement that outputs the value of newNum.
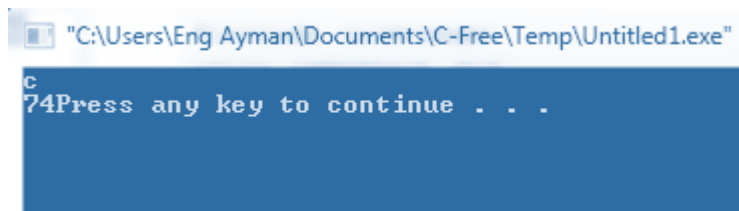
### Question Eight:

Write a C++ program that accepts two integers from the user and print them in separate lines.
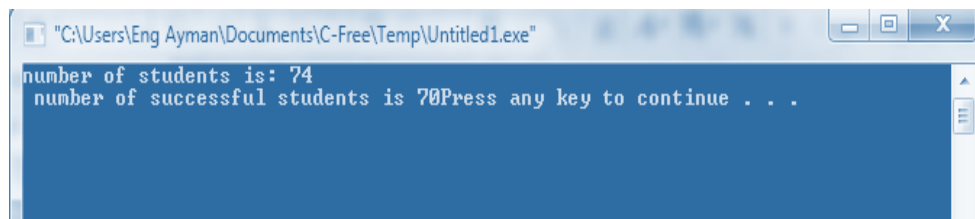
### Question Nine:

Trace and find the following programs output

```
#include <iostream>
 using namespace std;
 int main()
 {
 int c = 74;
 cout << "c"<<endl;
 cout << c;
 return 0;
 }
```

"C:\Users\Eng Ayman\Documents\C-Free\Temp\Untitled1.exe"

c
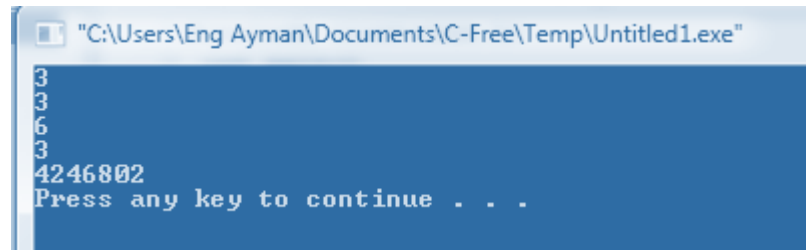74Press any key to continue . . .

```
#include <iostream.h>
 int main()
 {
 int x = 74;
 cout << "number of students is: " << x <<endl;
 cout << " number of successful students is " << 70 ;
 // Cout << " number of failed students is "<< 74 ;
```

"C:\Users\Eng Ayman\Documents\C-Free\Temp\Untitled1.exe"

number of students is: 74
 number of successful students is 70Press any key to continue . . .
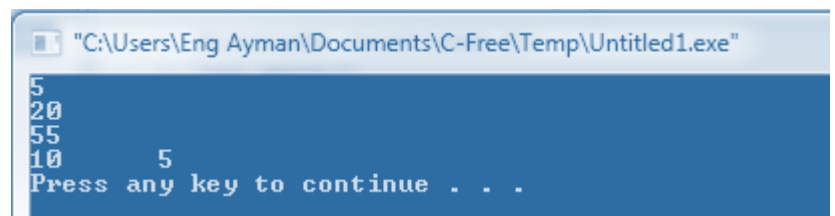
```
return 0;
}
```

_____

```cpp
#include <iostream.h>
int main()
{
int x = 5; // this is an initialization
x = x - 2; // this is an assignment
cout << x << endl; // #1
int y = x;
cout << y << endl; // #2
cout << x + y << endl; // #3
cout << x << endl; // #4
int z;
cout << z << endl; // #5
return 0; }
```

```
"C:\Users\Eng Ayman\Documents\C-Free\Temp\Untitled1.exe"
3
3
6
3
4246802
Press any key to continue . . .
```
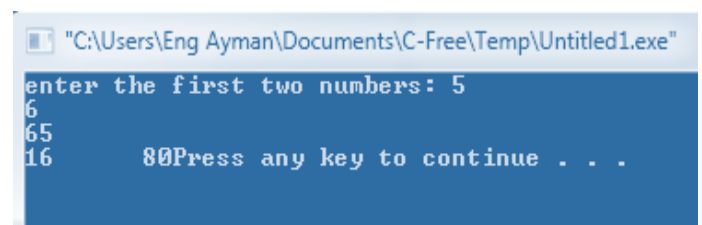
_____

```cpp
#include <iostream.h>
int main()
{
int x = 5, y=20; // this is an
initialization
std::cout << x << '\n'<< y << "\n" ; // #1
y = x;
cout << y << x <<endl; // #2
cout << x + y << "\t" ; // #3
cout << x << std::endl; // #4
return 0;
}
```

```
"C:\Users\Eng Ayman\Documents\C-Free\Temp\Untitled1.exe"
5
20
55
10      5
Press any key to continue . . .
```

_____

```cpp
#include <iostream.h>
int main()
{
int x, y, z; // this is a declaration
cout << "enter the first two numbers: "; // #1
cin >>x >>y; //put x=5 and y=6
z = x;
```

```
"C:\Users\Eng Ayman\Documents\C-Free\Temp\Untitled1.exe"
enter the first two numbers: 5
6
65
16      80Press any key to continue . . .
```

```cpp
cout << y << x <<endl; // #2
cout << x + y + z << "\t" ; // #3
cout << 30+50 ; // #4
return 0;
}
```

_____

```cpp
#include <iostream.h>
int main()
{
int x; // this is a declaration
x=30; // this is an assignment
cout << x;
return 0;
}
```



```
"C:\Users\Eng Ayman\Documents\C-Free\Temp\Untitled1.exe"
30Press any key to continue . . .
```

_____

```cpp
#include <iostream.h>
int main()
{
int x;
x=30;
cout << x;
return 0;
}
```



```
"C:\Users\Eng Ayman\Documents\C-Free\Temp\Untitled1.exe"
30Press any key to continue . . .
```