

« Programming »

* Lecture 4 *

operators

mathematical
« Arithmetic »
+, *, /, %

relation
<, >, =

Logic
&&, ||, !

1) Arithmetic operators:-

→ $a = a + 1$ is written in C++ as $a++$, $++a$.

* Notice the difference:

→ $a = 10;$
 $b = a++;$

الط هناخذ قيمة 10 الأولى
وتعرضها وتزيد قيمة 1
في الذاكرة

→ $a = 10;$
 $b = ++a;$

هنا نزيد قيمة الـ a الأولى
وتعرضها وأخذ القيمة بعد
الزيادة في الذاكرة

Similarly, $a = a - 1$ is written in C++ as $a--$, $--a$.

* Notice that: $a = a + 2$ C++ → $a += 2$

$a = a + 3$ C++ → $a += 3$

Similarly, $a = a - 2$ C++ → $a -= 2$

$a = a * 5$ C++ → $a *= 5$

* Don't Forget:

x^2 C++ → $\text{pow}(x, 2)$

\sqrt{x} → $\text{sqrt}(x)$

→ Look at Ex 13 Sheet 1:

```
#include <iostream.h>
main()
{
    int n = 4, k = 2;
    cout << ++n << endl;
    cout << n << endl;
    cout << n++ << endl;
    cout << n << endl;
    cout << -n << endl;
    cout << n << endl;
    cout << --n << endl;
    cout << n << endl;
}
```

5
5
5
6
-6
6
5
5

n	k
4	2
5	
6	
5	

Example:-

```
#include <iostream>
using namespace std;
main ()
{
    int n = 5;
    cout << "n" << endl;
    cout << " " << n << endl;
    cout << "n*n =" << endl;
}
```

n	5
n*n =	

2) Relation operators:-

math	C++
$>$	$>=$
\leq	$<=$
\neq	$!=$

3) Logic operators:-

AND	C++	&&
OR	C++	
NOT	C++	!

→ Look at Ex 14 in Sheet 1:

Exercise 14:

What is the output of the program below?

```
#include <iostream.h>
main( )
{   int n;
    cout << (n = 4) << endl;
    cout << (n == 4) << endl;
    cout << (n > 3) << endl;
    cout << (n < 4) << endl;
    cout << (n = 0) << endl;
    cout << (n == 0) << endl;
    cout << (n > 0) << endl;
    cout << (n && 4) << endl;
    cout << (n || 4) << endl;
    cout << (!n) << endl; }
```

4
1
1
0
0
1
0
0
1
1