

Day:

Date:

Increment decrement operator ($++$, $--$)

- Unary operators.
- Same precedence of both (Higher than arithmetic operators)
- **Associativity**: Right to left (\rightarrow)
- I will be using n as an int variable for explanation.
- There are two types of these operators:

Post Inc/dec ($n++$)

- 1st - returns the value of n
- 2nd - Then, increments ~~n~~

e.g. $n = 5;$ | output
 $\text{cout} \ll n++;$ | 5
 $\text{cout} \ll n;$ | 6
 ↑
 outputs the value then increments

Pre Inc/dec ($++n$)

- 1st - Increments ~~n~~
- 2nd - returns the variable n .

e.g. $n = 5;$ | output
 $\text{cout} \ll ++n;$ | 6
 $\text{cout} \ll n;$ | 6
 ↑
 incremented value.

IMPORTANT:

- $n++$ will return the value of n e.g. n had value 5 so it will return 5.
- while $++n$ will return ~~the~~ n , not the value.

example on next page.

Yousaf

• $n = 5$;

advised to find a place to live.

couber $n++ ++ n$;

output

12

How?

- 1- First $n++$ happens so
5 is returned while
 n becomes 6.
- 2- Then $6+1=7$, so
 $++n$ returns 7 which
is now 7.

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$$= 5 + h$$

$$= 5 + 7$$

$\therefore = 12$

no 5

And is $++n+n++$

Subplot:

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How?

- 1- First n takes place
5 becomes 6 a value
of n becomes 6
but n is returned.

- 2- Then `int` returns 6
and value of `n`
now becomes 7.

$$sq_1 = n + 6$$

$$= 7 + 6$$

= 13

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Important point:

1) a and b are variables.

$a++++b$; X Not allowed.

$a++ \overset{\text{space}}{+} ++b$; ✓ Allowed.

$(a++)+(++b)$; ✓ Allowed.

$a++b$; ✓ Allowed.

$a++b$ means $(a++)+b$

This is because Associativity is right to left. ~~the~~ $a++$ is first, so it is used.

$(a++)++$; X Not allowed.

$++(a++)$; X Not allowed.

$(++a)++$; ✓ Allowed.

$++(++a)$; ✓ Allowed.

* IF $++$ pre increment is in brackets it is allowed.

Why?

→ Increment/decrement operators work on variables NOT constants. Remember Pre returns a variable while Post returns a value so post not allowed while pre allowed.

Yousaf

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can be as many as you want -

$a++++;$ X Not allowed.
 $++++a;$ ✓ Allowed
 $+++++a;$ ✓ Allowed

reasoning for this is same as before.

$a++ + +++++b;$ ✓ Allowed.
 $a++++++b;$ X Not allowed.

@ why is $a++++++b$ not allowed?
 $a++++++b$ acts like.

$((a++)++)++b$

This all is not possible so not allowed.

$++a++++++b;$ X Not allowed.
 $++a++++b;$ X Not allowed.
 $++a++ ++b;$ ✓ Allowed.

$a++++++b;$ X Not Allowed.
 $a+++ +++b;$ ✓ Allowed.

Yousuf