

# Operator precedence

$$x = 7$$

$$7 = x$$

↑ not an L-value

$$F = C * 18 / 10 + 32$$

$$F = ((C * 18) / 10) + 32 \quad \text{evaluated like this}$$

$$F = C * (18 / 10) + 32 \quad X$$

$$\begin{array}{l} 2 + 3 * 4 \\ \downarrow \quad \searrow \\ 2 + (3 * 4) \end{array}$$

$$2 - 3 - 4$$

$$\begin{array}{l} \swarrow \quad \searrow \\ (2 - 3) - 4 \quad 2 - (3 - 4) \\ -1 - 4 \quad 2 - (-1) \\ -5 \quad 3 \end{array}$$

(-) minus operator  
is left associative

$$8 / 4 / 2$$

$$\begin{array}{l} \swarrow \quad \searrow \\ (8 / 4) / 2 \quad 8 / (4 / 2) \\ 2 / 2 \quad 8 / 2 \\ 1 \quad 4 \end{array}$$

$$8 / 4 * 5 \rightarrow (8 / 4) * 5$$

② ① ③

$7 \ll 4-3 \wedge 6$

$(7 \ll (4-3)) \wedge 6$   
 $(7 \ll 1) \wedge 6$   
 $0111 \ll 1 \wedge 6$   
 $1110 \wedge 6$   
 $1110 \wedge 0110$

$\wedge$	0	1
0	0	1
1	1	0

1	1	1	0
0	1	1	0
<hr/>			
1	0	0	0

8 ←

$x = y = 7$

$x = (y = 7)$

$x = 7$

$y = 7$

$x = 7$

$x = (y += 7)$

$x = 9$

initially  
 $y = 2$   
 $x = 0$

$y = 9$

$x = 9$

$x += (y = 7)$

$x += 7$

$y = 2$   
 $x = 5$

$y = 7$

$x = 12$

$C = 82$   
 $C = 0x52$   
 $C = 'R'$

}

identical to  
the compiler

before  
 $x=1$   
 $y=2$   
 $z=3$

after  
 $6$   
 $5$

print ("god",  $x+=y+=z$ );  
 $x+=5$

use same

$x=y=z$   
 $x=0$

$x=0$

$x==y==z$   
 $0==2$  X **Illegal**

$x==y==z$   
 $0==2$

before	after
$x=1$	$x=2$
$y=2$	$y=1$
$z=3$	$z=4$

$y = y == 3$   $||$   $++x == z++ - 1$   $\&\&$   $y < 4$   
 $0$   $2$   $3$   $2$   $1$   
 $2 == 2$   $1$   $\&\&$   $1$   
 $0$   $1$   
 $y =$   $1$   $\leftarrow$  final evaluation

if ( <sup>①</sup>8 < x <sup>②</sup><= 15 ) ... ? X  $x=4$

0 <= 15

if ( 8 < x && x <= 15 ) ✓

if x is 11 or 13  
X == 11 || 13 ? X  
if ( x == 11 || x == 13 )

if ( x != 6 || x != 7 ) ?

"Syntax" is OK  
but this is a  
"logical error"  
in this case the  
statement is  
always True (1)

opposite } if ( x != 6 && x != 7 )  
} if x == 6 || x == 7  
DeMorgan's Theorem