

# C Operator Precedence

The following table lists the precedence and associativity of C operators. Operators are listed top to bottom, in descending precedence.

Precedence	Operator	Description	Associativity
<b>1</b>	++ -- ( ) [] . -> (type){list}	Suffix/postfix increment and decrement Function call Array subscripting Structure and union member access Structure and union member access through pointer Compound literal (C99)	Left-to-right
<b>2</b>	++ -- + - ! ~ (type) * & sizeof _Alignof	Prefix increment and decrement Unary plus and minus Logical NOT and bitwise NOT Cast Indirection (dereference) Address-of Size-of Alignment requirement (C11)	Right-to-left
<b>3</b>	* / %	Multiplication, division and remainder	Left-to-right
<b>4</b>	+ -	Addition and subtraction	
<b>5</b>	<< >>	Bitwise left shift and right shift	
<b>6</b>	< <=	For relational operators < and ≤ respectively	
	> >=	For relational operators > and ≥ respectively	
<b>7</b>	== !=	For relational = and ≠ respectively	
<b>8</b>	&	Bitwise AND	
<b>9</b>	^	Bitwise XOR (exclusive OR)	
<b>10</b>		Bitwise OR (inclusive OR)	
<b>11</b>	&&	Logical AND	
<b>12</b>		Logical OR	
<b>13</b>	?:	Ternary conditional	Right-to-left
<b>14</b>	=	Simple assignment	
	+= -=	Assignment by sum and difference	
	*= /= %=	Assignment by product, quotient and remainder	
	<<= >>=	Assignment by bitwise left shift and right shift	
	&= ^=  =	Assignment by bitwise AND, XOR and OR	
<b>15</b>	,	Comma	Left-to-right