# Order of Precedence for C++ Operators

From greatest to smallest priority, C++ operators are evaluated in the following order:

| Level | Precedence group | Operator | Description | Grouping |
|---|---|---|---|---|
| 1 | Scope | `::` | scope qualifier | Left-to-right |
| 2 | Postfix (unary) | `++ --` | postfix increment / decrement | Left-to-right |
| | | `()` | functional forms | |
| | | `[]` | subscript | |
| | | `. ->` | member access | |
| 3 | Prefix (unary) | `++ --` | prefix increment / decrement | Right-to-left |
| | | `~ !` | bitwise NOT / logical NOT | |
| | | `+ -` | unary prefix | |
| | | `& *` | reference / dereference | |
| | | `new delete` | allocation / deallocation | |
| | | `sizeof` | parameter pack | |
| | | (*type*) | C-style type-casting | |
| 4 | Pointer-to-member | `.* ->*` | access pointer | Left-to-right |
| 5 | Arithmetic: scaling | `* / %` | multiply, divide, modulo | Left-to-right |
| 6 | Arithmetic: addition | `+ -` | addition, subtraction | Left-to-right |
| 7 | Bitwise shift | `<< >>` | shift left, shift right | Left-to-right |
| 8 | Relational | `< > <= >=` | comparison operators | Left-to-right |
| 9 | Equality | `== !=` | equality / inequality | Left-to-right |
| 10 | And | `&` | bitwise AND | Left-to-right |
| 11 | Exclusive or | `^` | bitwise XOR | Left-to-right |
| 12 | Inclusive or | `\|` | bitwise OR | Left-to-right |
| 13 | Conjunction | `&&` | logical AND | Left-to-right |
| 14 | Disjunction | `\|\|` | logical OR | Left-to-right |
| 15 | Assignment-level expressions | `= *= /= %= += -= >>= <<= &= ^= \|=` | assignment / compound assignment | Right-to-left |
| | | `?:` | conditional operator | |
| 16 | Sequencing | `,` | comma separator | Left-to-right |