



UNUSUAL OPERATORS

Useful, but no analog in mathematics



AUTO INCREMENT & AUTO DECREMENT

- Unary operators; each operand must be a variable
- Four operators:
 - pre-increment ($++v$)
 - pre-decrement ($--v$)
 - post-increment ($v++$)
 - post-decrement ($v--$)
- Order of operation only important when auto the operation is embedded in a more complex expression
 - $v++;$ is the same as $++v;$
 - $x = v++;$ is different than $x = ++v;$
- The difference is order in which we “use the stored value” compared to when the increment or decrement takes place

AUTO OPERATORS CONTINUED

x = 10;

Operator	Meaning	Result
a = x++;	a = x; x = x + 1;	a == 10 x == 11
a = ++x;	x = x + 1; a = x;	a == 11 x == 11
a = x--;	a = x; x = x - 1;	a == 10 x == 9
a = --x;	x = x - 1; a = x;	a == 9 x == 9

OPERATION WITH ASSIGNMENT

- Just a shortcut
- Left hand operand must be a variable
- op= (+=, -=, *=, /=, %=, ~=, <<=, and >>=+)

- `x += 10;`

`x = x + 10;`

- `i -= 10;`

`i = i - 10;`

- `a /= b;`

`a = a / b;`

- `x *= 2;`

`x = x * 2;`

- `index %= size;`

`index = index % size;`



CONDITIONAL OPERATOR

- Behaves much like an if-else statement, but forms an expression (i.e., has a value)
- $ex1 ? ex2 : ex3$
 - if $ex1$ is true (i.e., not 0), the value of the expression is $ex2$
 - if $ex1$ is false (i.e., 0), the value of the expression is $ex3$
- **Examples**
 - $min = (x < y) ? x : y$
 - $max = (x > y) ? x : y;$
 - $z = (x > y) ? (x + 10) : (y - 10);$

