

# ARITHMETIC OPERATORS

Modulo

int a = 10

int b = 3

% → returns the remainder

a + b = 13

a % b = 1

a - b = 7

a \* b = 30

10 % 2 = 0

10 % 6 = 4

Handwritten division examples:  

$$\begin{array}{r} b \overline{)a} \\ 3 \overline{)10} \\ \underline{9} \phantom{0} \\ 1 \phantom{0} \end{array}$$

Handwritten division examples:  

$$\begin{array}{r} 5 \overline{)10} \\ \underline{10} \\ 0 \end{array}$$
  

$$\begin{array}{r} 6 \overline{)10} \\ \underline{6} \\ 4 \end{array}$$

+ - \* / %

++  
↓  
increment

--  
↓  
decrement

int a = 10

int a = 10

a++ ⇒ 11  
↓ +1

a++ ⇒ 12  
↓ +1

a++ ⇒ 13

-1 ↓ a-- ⇒ 9

-1 ↓ a-- ⇒ 8

-1 ↓ a-- ⇒ 7

## Increment/Decrement

Pre

Post

++a  
--a

a++  
a--

int a = 10

int a = 10

cout << ++a; // 11

cout << a; // 10

cout << ++a; // 11

cout << a; // 10

++a;  
a++;

int a = 10;  
int b = a++;  
b = 10  
a = 11

a = 10  
int b = ++a;  
b = 11  
a = 11

int a;

✓ a = 10;

a += 5

a = a + 5  
a = 10 + 5  
a = 15

a = a \* 2

a = a / 2 ⇒ 10 / 2 = 5

	a
a = 10	10
a += 2	12
a -= 2	10
a *= 2	20
a /= 2	10
a % 2	0

## & → Bitwise AND

10 & 2

10 → 1010  
2 → 0010  
-----  
0010

2