Operators:

1. Arithmatic

+ , − , * , / , %

Ex: a = 5 , b = 10

a+b = 15
a−b = −5
a*b = 50
a/b = 0
a%b = 5

b | a
10 | 5 → 0 → Quotient
0
(5) → Remainder

2. Assignment

= , += , −= , *= , /= , %=

Ex: a = 5

a = a+5 ; → Resolving the left hand side

a = 10

a: ~~5~~ 10

a = a + 5
a += 5 ;
→ Both are same

3. Logical

AND : &&
OR : ||
NOT : !

F → false
T → true

J	D	&&	||	!J	!D
F	F	F	F	T	T
F	T	F	T	T	F
T	F	F	T	F	T
T	T	T	T	F	F

4. Relational

Equals : == , > , >= , < , <= , !=

Ex: a = 5 , b = 10 , c = 5

a == b → false , a == c → true
a <= b → true , a >= c → true

Note:
Relational operators always return the boolean value i.e. true / false

5. Concatenation:

+ → Applicable only for Strings
String s = "Apple";

Ex: 5 + 6 = 11
"a" + "b" = "ab"
"Java" + "Selenium" = "JavaSelenium"
"a" + 5 = "a5"
"a" + 5 + 6 = "a5" + 6 = "a56"
5 + 6 + "a" = 11 + "a" = "11a"

6. Unary

Increment — Decrement

pre: ++a , --a
post: a++ , a--

Note: In case of unary operator, the operand value is getting increased/decreased by one only & assigned to the respective value

a. x = 10;
y = ++x ;
print(x); 11
print(y); 11

x	y
~~10~~	
11	11

b. x = 10;
→ y = x++ ;
print(x); 11
print(y); 10

x	y
~~10~~	10
11	

c. x = 10;
y = --x ;
print(x); 9
print(y); 9

x	y
~~10~~	
9	9

d. x = 10;
y = x-- ;
print(x); 9
print(y); 10

x	y
~~10~~	10
9	

e. i = 20;
j = ++i + i++ + ++i − i-- ;
print(i); 22
print(j); 42

i: ~~20~~ , 1 → ~~21~~ , ~~22~~ , ~~23~~ , 22
j: 42

j = 21 + 21 + ~~23~~ − ~~23~~
= 42

f. s = 5;
t = s++ + ++s + --s − s-- + ++s;
print(s);
print(t);

s: ~~5~~ , ~~6~~ , ~~7~~ , ~~6~~ , ~~5~~ , 6
t: 18
5 + 7 + ~~6~~ − ~~6~~ + 6

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t = 17
s = 6

Thumb Rule to solve:

If pre : 1st operate then use the value
If post : 1st use the value then operate