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Operators

Arithmetic Operators

NAME	OPERATOR	PURPOSE & NOTES	EXAMPLE	RESULT
ADDITION	+	Adds one value to another	10+5	15
SUBTRACTION	-	Subtracts one value from another	10-5	5
DIVISION	/	Divides two values	10/5	2
MULTIPLICATION	*	Multiplies two values	10*5	50
MODULUS	%	Divides two values and returns the remainder	10%3	1

Unary Operators

Operator	Name	Meaning
+	Unary Plus Operator	Indicates positive value
-	Unary Minus Operator	Negates an expression or value
++	Increment Operator	Increments a value by 1
--	Decrement Operator	Decrements a value by 1

Pre Increment/Decrement

- Increment/decrement operators are placed before the operand
- Increases/decreases the value by 1 in the memory

```
int a = 25;
System.out.println(++a);    //26
System.out.println(--a);    //25
```

Post Increment/Decrement

- Increment/decrement operators are placed after the operand
- Old value of the variable will be used first before Increases/decreases the value by 1 in the memory

```
int b = 25;
System.out.println(b++);    //25
System.out.println(b--);    //26
```

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Shorthand Operators

NAME	SHORTHAND OPERATOR	MEANING
Assignment	x = y	x = y
Addition Assignment	x += y	x = x + y
Subtraction Assignment	x -= y	x = x – y
Multiplication Assignment	x *= y	x = x * y
Division Assignment	x /= y	x = x / y
Remainder Assignment	x %= y	x = x % y

Relational Operators

⚠ All relational operators return Boolean (true or false)

Description	Operator
Greater than	>
Greater than or equal	>=
Less than	<
Less than or equal	<=
Equal	==
Not equal	!=

Logical Operators

All logical operators return Boolean (true or false)

OPERATOR	DESCRIPTION
&&	Logical AND
||	Logical OR
!	Logical NOT

Truth table for && (Logical AND)

Expression1	Expression2	Returned Value
False	False	False
False	True	False
True	False	False
True	True	True

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Truth table for || (Logical OR)

Expression1	Expression2	Returned Value
False	False	False
False	True	True
True	False	True
True	True	True

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Logical NOT Operator (!)

Expression	Returned Value
False	True
True	False

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Precedence of all Operators

Order of Precedence	Operators	Description
1	- !	Unary negation, logical NOT
2	* / %	Multiplication, division, modulus
3	+ -	Addition, subtraction
4	< > <= >=	Less than, Greater than, Less than or Equal to, Greater than or equal to
5	== !=	Equal to, not equal to
6	&&	Logical AND
7	||	Logical OR
8	= += -= *= /= %=	Assignment and combined assignments