Operators

Operators

- Arithmetic Operators `+ - * / % ++ *=`
- Assignment Operator `=`
- Relational Operators `== != > <`
- Boolean Logical Operators `! && ||`
- Ternary Operator `?`

Arithmetic Operators

+	Addition
-	Subtraction
*	Multiplication
/	Division

```java
int x = 6;
int y = 2;
int z = 2;

int result = x - y / z;
System.out.println(result); // 5

result = (x - y) / z;
System.out.println(result); // 2
```

Arithmetic Operators

+	Addition
-	Subtraction
*	Multiplication
/	Division
%	**Modulus**

```java
int x = 5;
int y = 2;

int result = x / y;
System.out.println(result); // 2

result = x % y;
System.out.println(result); // 1
```

Arithmetic Operators

+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Modulus
++	**Increment**
--	**Decrement**

```
int x = 5;
int y = 0;

x = x + 1;              // 6
x++;
System.out.println(x); // 7

++x;
System.out.println(x); // 8

y = x++;
System.out.println(x); // 9
System.out.println(y); // 8

y = ++x;
System.out.println(x); // 10
System.out.println(y); // 10
```

Arithmetic Operators

+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Modulus
++	Increment
--	Decrement
+=	**Addition assignment**
-=	**Subtraction assignment**
***=**	**Multiplication assignment**
/=	**Division assignment**
%=	**Modulus assignment**

```
int x = 5;

x = x + 10; // 15
x += 10;    // 25

x = x - 5;  // 20
x -= 5;     // 15

x *= 2;     // 30

x /= 3;     // 10

x %= 4;     // 2

System.out.println(x);  // 2
```

Assignment Operator

=	Assignment

variable = expression;

```java
int x = 4;
int y = 5;

int a, b, c;
a = b = c = 10;

System.out.println(a); // 10
System.out.println(b); // 10
System.out.println(c); // 10
```

Relational Operators

==	Equal to
!=	Not equal to
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

```
int x = 4;
int y = 5;
boolean compare;

compare = (x == y);
System.out.println(compare); // false

compare = (x != y);
System.out.println(compare); // true

compare = (x > y);
System.out.println(compare); // false

compare = (x < y);
System.out.println(compare); // true

compare = (x <= y);
System.out.println(compare); // true
```

Boolean Logical Operators

!	Logical NOT

Truth Table:

A	!A
true	false
false	true

```
boolean x = true;
boolean y = false;

System.out.println(x); // true;
System.out.println(!x); // false;
System.out.println(x); // true;

System.out.println(y); // false;
System.out.println(!y); // true;
```

A truth table is a mathematical table used in logic.

Boolean Logical Operators

&&	**Logical AND**
||	**Logical OR**

Truth Table:

A	B	A & B	A | B
true	true	true	true
true	false	false	true
false	true	false	true
false	false	false	false

```
boolean x = true;
boolean y = false;
boolean compare;

compare = x && y;
System.out.println(compare); // false

compare = x || y;
System.out.println(compare); // true
```

Ternary Operator

?	Ternary (Conditional)

condition **?** *expression 1* **:** *expression 2*

```
int age = 20;
boolean canVote;

canVote = (age >= 18) ? true : false;
System.out.println(canVote); // true;

age = 17;
canVote = (age >= 18) ? true : false;
System.out.println(canVote); // false;
```