

# Operators & Expressions

## Arithmetic Operators:

( $+$ ,  $-$ ,  $*$ ,  $/$ ,  $\%$ )

Integer Arithmetic : (integer  $\circ$  integer)  $\rightarrow$  integer

Real " : (real  $\circ$  real)  $\rightarrow$  real

Mixed-mode " : (integer  $\circ$  real)  $\rightarrow$  real

## Logical Operators:

( $\&\&$ ,  $\|\$ ,  $!$ )

Truth table for above three logical operators.

## Assignment Operator:

( $=$ )

$[V \text{ op} = \text{exp};] = [V = V \text{ op}(\text{exp});]$

## Increment & Decrement Operators:

( $++$ ,  $--$ )

## Conditional Operators:

$[\text{exp1} ? \text{exp2} : \text{exp3}]$

## Bitwise Operators:

$[ \&, |, ^, \sim, <<, \gg, \ggg ]$

This operators may not be applied to float/double.

## Relational Operators:

$[ <, <=, >, >=, ==, != ]$

# Precedence and order of evaluation of operators:

## Operators

## Associativity.

left to right

Left to right

left to right

( ) [ ] → .

! , ~ , ++ , -- , + , - , \* , / , (type) , sizeof

\* , / , %

+ , -

< , <= , > , >=

== , !=

^

| (Bitwise inclusive OR)

&&

:

= , += , -= , \*= , /= , %= , &= , ^= , |= , <<= , >>=

right to left

right to left

left to right

### Input from Keyboard:

```
import java.util. Scanner;  
public class demo {  
    PSVM (String arr[]) {  
        Scanner sc = new Scanner (System.in);  
        int a = sc.nextInt();  
        SOP(a);  
    }  
}
```

{  
int a = sc.nextInt();  
double a = sc.nextDouble();  
String a = sc.next(); → Reads till space (ie. only one word)  
          = sc.nextLine(); → Reads till next line  
char a = sc.next().charAt(0);  
}

### Short Circuiting: (Optional topic)

a || b || c

T	x	x	→ T
F	T	x	→ T
F	F	T	→ T
F	F	F	→ F

a && b && c

F	x	x	→ F
T	F	x	→ F
T	T	F	→ F
T	T	T	→ T

## Command Line Arguments:

```
public static void main (String arr[]) {  
    int a = Integer.parseInt(arr[0]);  
    // First argument will store in 'a'.  
    int b = Integer.parseInt(arr[1]);  
    // Second argument will store in 'b'.  
    System.out.println(a + b); // arr[0] + arr[1]  
}
```

### NOTE :

Parse : It is a method which take a String(input) as an argument and Convert in other formats as like:

```
Integer.parseInt();  
Double.parseDouble();  
Float.parseFloat();
```