

Operator

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Operator Aritmetika

- *Addition* (Penjumlahan) è $+$, operator “+” digunakan juga sebagai operator pada operasi *concatenation* (penggabungan) pada *string*.
- *Subtraction* (Pengurangan) è $-$
- *Multiplication* (Perkalian) è $*$
- *Division* (Pembagian) è $/$
- *Modulus* (Sisa Bagi) è $\%$
- *Increment* è $++$
- *Decrement* è $--$

Operator Aritmetika

```
x = 3 + 4; // x = 7
```

```
x = 5 - 2; // x = 3
```

```
x = 4 * 8; // x = 32
```

```
x = 6 / 4; // x = 1.5
```

```
x = 3 % 2;
```

```
x++; // x = x + 1
```

```
++x;
```

```
x--; // x = x - 1
```

```
--x;
```

Increment dan Decrement

- $a = x++$, nilai x lama disimpan terlebih dahulu ke variabel a , setelah itu nilai x ditambah 1.
- $a = ++x$, nilai x ditambahkan terlebih dahulu, kemudian disimpan ke variabel a .
- $a = x--$, nilai x lama disimpan terlebih dahulu ke variabel a , setelah itu nilai x dikurangi 1.
- $a = --x$, nilai x dikurangi terlebih dahulu, kemudian disimpan ke variabel a .

Operator Assignment

- $=$, contoh: $x = y$, jika $y = 4$, maka $x = 4$
- $+=$, contoh: $x+=y$ è $(x = x + y)$
- $-=$, contoh: $x-=y$ è $(x = x - y)$
- $*=$, contoh: $x*=y$ è $(x = x * y)$
- $/=$, contoh: $x/=y$ è $(x = x / y)$
- $\% =$, contoh: $x\%=y$ è $(x = x \% y)$

Operator Perbandingan (Comparison)

- `==`, sama dengan, tidak mempertimbangkan type data, contoh: `x == 4`
- `===`, identik, type data harus sama, contoh: `x === 5`;
- `!=`, tidak sama dengan, contoh: `x != 5`
- `>`, lebih besar dari, contoh: `x > 4`
- `<`, lebih kecil (kurang) dari, contoh: `x < 3`
- `>=`, lebih besar dari atau sama dengan, contoh: `x >= 6`
- `<=`, kurang dari atau sama dengan, contoh: `x <= 7`

Operator Logika

- **&&**, and (dan)

kondisi	True	False
True	True	False
false	False	False

Contoh:

Jika **x = 4**, dan **y = 5**, maka

(x > 3) && (y < 6), akan bernilai true

Operator Logika

- `||`, or (atau)

kondisi	True	False
True	True	True
false	True	False

Contoh:

Jika `x = 4`, dan `y = 5`, maka

`(x > 3) || (y > 8)`, akan bernilai true

Nilai true akan didapat, **jika salah satu kondisi bernilai true**, meskipun kondisi lainnya bernilai false.

Operator Logika

- **!** (**not**), operator negasi, akan membalikan nilai true dan false.

Contoh:

Jika **x = 5**,

Maka **!(x > 6)**, akan bernilai true.

Operator Conditional

Syntax:

variabel = periksa kondisi ? nilaiJikaBenar : nilaiJikaSalah;

Contoh:

x = (a > 3) ? "Ok!" : "Gak Ok!";

Keterangan:

Nilai **x** ditentukan oleh kondisi (a > 3), jika benar (**true**) maka x akan diberi nilai "**Ok!**", selain itu (**false**) akan diberi nilai "**Gak Ok!**"

Prioritas Operator

Operator	Description	Priority
* / %	Multiplication, Division, Modulus	Highest
+ -	Addition, Subtraction	
<< >> >>>	Bitwise Shift	
< <= > >=	Comparison	
== !=	Equality	
&&	Logical AND	
	Logical OR	
?:	Conditional	
= += -= *= /= %=	Assignment	
,	Comma	Lowest

Sumber: http://www.techotopia.com/index.php/JavaScript_Operators

Latihan 1

```
<html>
  <head>
    <title>Operator Aritmetika</title>
  </head>
  <body>
    <script type="text/javascript">
      var a = 5;

      var x;

      document.write( "nilai a = " + a + "<br>" );

      x = a + 6; //penjumlahan
      document.write( "nilai a + 6 = " + x + "<br>" );

      x = a - 4; //pengurangan
      document.write( "nilai a - 4 = " + x + "<br>" );

      x = a * 10; //perkalian
      document.write( "nilai a * 10 = " + x + "<br>" );

      x = a / 3; //pembagian
      document.write( "nilai a / 3 = " + x + "<br>" );

      x = a % 2; //sisanya bagi
      document.write( "nilai a % 2 = " + x + "<br>" );
```

```
a++; //increment
document.write( "nilai a setelah increment = " + a + "<br>" );

++a; //increment
document.write( "nilai a setelah increment = " + a + "<br>" );

x = a++;
document.write( "nilai x = " + x + ", dan nilai a = " + a + "<br>" );

x = ++a;
document.write( "nilai x = " + x + ", dan nilai a = " + a + "<br>" );

a--; //decrement
document.write( "nilai a setelah decrement = " + x + "<br>" );

--a; //decrement
document.write( "nilai a setelah decrement = " + x + "<br>" );

x = a--;
document.write( "nilai x = " + x + ", dan nilai a = " + a + "<br>" );

x = --a;
document.write( "nilai x = " + x + ", dan nilai a = " + a + "<br>" );
</script>
</body>
</html>
```

Latihan 2

```
<html>
  <head>
    <title>Operator Assignment dan Perbandingan</title>
  </head>
  <body>
    <h2>Operator Assignment</h2>
    <script type="text/javascript">
      var a = 5;
      var x = 4;
      document.write( "nilai a = " + a + "<br>" );
      document.write( "nilai a = " + x + "<br>" );
      x+=a; // x = x + a
      document.write( "x+=a, maka nilai x = " + x + "<br>" );

      x-=a; // x = x - a
      document.write( "x-=a, maka nilai x = " + x + "<br>" );

      x*=a; // x = x * a
      document.write( "x*=a, nilai x = " + x + "<br>" );

      x/=a; // x = x / a;
      document.write( "x/=a, nilai x = " + x + "<br>" );

      x%=a; // x = x % a;
      document.write( "x%=a, nilai x = " + x + "<br>" );
    </script>
```

<h2>Operator Perbandingan (Comparison)</h2>

```
<script type="text/javascript">
```

```
var ax = 5;  
var ay = "5";  
var az = 6;  
var y;
```

```
document.write( "nilai ax = " + ax + ", type data = " + typeof( ax ) + "<br>" );  
document.write( "nilai ay = " + ay + ", type data = " + typeof( ay ) + "<br>" );  
document.write( "nilai az = " + az + ", type data = " + typeof( az ) + "<br>" );
```

```
y = ( ax == ay );  
document.write( "apakah nilai ax 'sama dengan' ay? " + y + "<br>" );
```

```
y = ( ax === ay );  
document.write( "apakah nilai ax identik dengan ay? " + y + "<br>" );
```

```
y = ( ax > ay );  
document.write( "ax > az = " + y + "<br>" );
```

```
y = ( ax < az );  
document.write( "ax < az = " + y + "<br>" );
```

```
y = ( ax >= az );  
document.write( "ax >= az = " + y + "<br>" );
```

```
y = ( ax != az );  
document.write( "ax != az = " + y + "<br>" );
```

```
</script>  
</body>  
</html>
```


Latihan 3

```
<html>
  <head>
    <title>Operator Logika</title>
  </head>
  <body>
    <h2>Operator Logika</h2>
    <script type="text/javascript">
      var a = 5;
      var b = 10;
      var x;

      document.write( "nilai a = " + a + "<br>" );
      document.write( "nilai b = " + b + "<br>" );

      //operator && (AND)
      x = ( a >= 5 ) && ( b < 10 );
      document.write( "nilai x = " + x + "<br>" );

      x = ( a < 6 ) && ( b < 20 );
      document.write( "nilai x = " + x + "<br>" );

      //operator || (OR)
      x = ( a >= 5 ) || ( b < 10 );
      document.write( "nilai x = " + x + "<br>" );
```

```
x = ( a < 6 ) || ( b < 20 );  
document.write( "nilai x = " + x + "<br>" );  
  
//operator ! (NOT) atau negasi  
x = !( a < 6 );  
document.write( "nilai x = " + x + "<br>" );  
  
x = !( ( a < 10 ) && ( b > 15 ) );  
document.write( "nilai x = " + x + "<br>" );  
  
x = ( a > 4 ) ? "OK!" : "Gak OK!";  
document.write( "nilai x = " + x + "<br>" );  
</script>  
</body>  
</html>
```