# **JavaScript Variables**

JavaScript variables are containers for storing data values.

In this example, x, y, and z, are variables:

### **Example**

var x = 5;  
var y = 6;  
var z = x + y;

From the example above, you can expect:

* x stores the value 5
* y stores the value 6
* z stores the value 11

## Much Like Algebra

In this example, price1, price2, and total, are variables:

### **Example**

var price1 = 5;  
var price2 = 6;  
var total = price1 + price2;

In programming, just like in algebra, we use variables (like price1) to hold values.

In programming, just like in algebra, we use variables in expressions (total = price1 + price2).

From the example above, you can calculate the total to be 11.

JavaScript variables are containers for storing data values.

## JavaScript Identifiers

All JavaScript **variables** must be **identified** with **unique names**.

These unique names are called **identifiers**.

Identifiers can be short names (like x and y) or more descriptive names (age, sum, totalVolume).

The general rules for constructing names for variables (unique identifiers) are:

* Names can contain letters, digits, underscores, and dollar signs.
* Names must begin with a letter
* Names can also begin with $ and \_ (but we will not use it in this tutorial)
* Names are case sensitive (y and Y are different variables)
* Reserved words (like JavaScript keywords) cannot be used as names

JavaScript identifiers are case-sensitive.

Naming Conventions

Always use the same naming convention for all your code. For example:

* Variable and function names written as **camelCase**
* Global variables written in **UPPERCASE**(We don't, but it's quite common)
* Constants (like PI) written in **UPPERCASE**

Should you use **hyp-hens**, **camelCase**, or **under\_scores** in variable names?

This is a question programmers often discuss. The answer depends on who you ask:

**Hyphens in HTML and CSS:**

HTML5 attributes can start with data- (data-quantity, data-price).

CSS uses hyphens in property-names (font-size).

Hyphens can be mistaken as subtraction attempts. Hyphens are not allowed in JavaScript names.

**Underscores:**

Many programmers prefer to use underscores (date\_of\_birth), especially in SQL databases.

Underscores are often used in PHP documentation.

**PascalCase:**

PascalCase is often preferred by C programmers.

**camelCase:**

camelCase is used by JavaScript itself, by jQuery, and other JavaScript libraries.

Do not start names with a $ sign. It will put you in conflict with many JavaScript library names.

## JavaScript Statements

JavaScript statements are composed of:

Values, Operators, Expressions, Keywords, and Comments.

This statement tells the browser to write "Hello Dolly." inside an HTML element with id="demo":

### **Example**

document.getElementById("demo").innerHTML = "Hello Dolly.";

Most JavaScript programs contain many JavaScript statements.

The statements are executed, one by one, in the same order as they are written.

JavaScript programs (and JavaScript statements) are often called JavaScript code.

## Semicolons ;

Semicolons separate JavaScript statements.

Add a semicolon at the end of each executable statement:

var a, b, c;     // Declare 3 variables  
a = 5;           // Assign the value 5 to a  
b = 6;           // Assign the value 6 to b  
c = a + b;       // Assign the sum of a and b to c

JavaScript Arithmetic Operators

Arithmetic operators perform arithmetic on numbers (literals or variables).

|  |  |
| --- | --- |
| **Operator** | **Description** |
| + | Addition |
| - | Subtraction |
| \* | Multiplication |
| \*\* | Exponentiation ([ES2016](https://www.w3schools.com/js/js_es6.asp)) |
| / | Division |
| % | Modulus (Remainder) |
| ++ | Increment |
| -- | Decrement |

JavaScript Assignment Operators

Assignment operators assign values to JavaScript variables.

|  |  |  |
| --- | --- | --- |
| **Operator** | **Example** | **Same As** |
| = | x = y | x = y |
| += | x += y | x = x + y |
| -= | x -= y | x = x - y |
| \*= | x \*= y | x = x \* y |
| /= | x /= y | x = x / y |

A very important link for exams & projects:

<https://www.w3schools.com/js/js_variables.asp>

<https://www.w3schools.com/js/js_conventions.asp>

\*\*\*This note is a copy of w3schools js tutorial page. \*\*\*