JavaScript, Sixth Edition

Chapter 2 Solutions

[SHORT QUIZ]Short Quiz 1

[NL]

1. What is the difference between a named function and an anonymous function?

A named function is a set of related statements that is assigned a name. You can use this name to reference, or call, this set of statements in other parts of your code. An anonymous function, on the other hand, is a set of related statements with no name assigned to it. The statements in an anonymous function work only in a single context—the place in the code where they are located.

1. Why does a named function not execute automatically? How do you execute it?

Creating a named function definition only names the function, specifies its parameters, and organizes the statements it will execute. To execute a named function, you must invoke, or call, it from elsewhere in your program. The code that calls a named function is referred to as a function call and consists of the function name followed by parentheses, which contain any variables or values to be assigned to the function parameters.

1. What alternatives exist to specifying an event handler using an HTML attribute?

One alternative is to specify the function as a property value for the object representing the HTML element. Each element has an on*event* property for each event it supports. The other alternative is the addEventListener() method, which is available for every web page element.

1. How do you view any error messages that a browser might generate when processing your code?

Browsers display error messages in a pane known as a browser console. You use either a keyboard shortcut or a menu command to make the browser console visible.

1. Why is it poor programming practice to declare a global variable inside of a function by not using the var keyword?

It makes it harder to identify the global variables in your scripts. Using the var keyword forces you to explicitly declare your global variables outside of any functions and local variables within functions.

[SHORT QUIZ]Short Quiz 2

[NL]

1. What is the difference between an integer and a floating-point number?

An integer is a positive or negative number with no decimal places. A floating-point number is a number that contains decimal places or that is written in exponential notation.

1. Which possible values can a Boolean variable have?

true or false

1. What is an empty string?

A zero-length string assigned as the value of a string variable.

1. Why do you sometimes need to insert an extra space in a string when using the concatenation operator?

When values are concatenated, the last character of the first value is directly followed by the first character of the second value. If a space is needed between the two values, you need to add it.

[SHORT QUIZ]Short Quiz 3

[NL]

1. What is the difference between a binary operator and a unary operator?

A binary operator requires an operand before and after the operator. A unary operator requires just a single operand either before or after the operator.

1. How does JavaScript deal with code that performs arithmetic operations on string values?

When performing arithmetic operations on string values, a JavaScript interpreter attempts to convert the string values to numbers. However, JavaScript interpreters do not convert strings to numbers when you use the addition operator. When you use the addition operator with strings, the strings are combined instead of being added together.

1. What is a comparison operator? What kind of value does it return?

A comparison operator, or relational operator, is used to compare two operands and determine if one value is greater than another. A Boolean value of true or false is returned after two operands are compared.

1. What is a falsy value? What are the six falsy values in JavaScript?

A falsy value is a value that is treated in comparison operations as the Boolean value false. The six falsy values in JavaScript are "", -0, 0, NaN, null, and undefined.

[SHORT QUIZ]Short Quiz 4

[NL]

1. When performing operations with operators in the same precedence group, how is the order of precedence determined?

The order of precedence is determined by the operator’s associativity, which is the order in which operators of equal precedence execute. Associativity is evaluated from left-to-right or right-to-left, depending on the operators involved.

1. How is the expression 5 + 2 \* 8 evaluated? Explain your answer.

The numbers 2 and 8 are multiplied first for a total of 16, then the number 5 is added, resulting in a total of 21. This is because the \* operator has higher precedence than the + operator.

# [RQ HEAD]Review Questions

[RQ QUESTIONS]

* + 1. A(n) \_\_\_ allows you to execute a related group of statements as a single unit.

[RQ MULT CHOICE]

* + - 1. variable
      2. statement
      3. event
      4. function
    1. Parameters in a function definition are placed within \_\_\_\_\_\_\_\_\_\_ .
       1. braces
       2. parentheses
       3. double quotes
       4. single quotes
    2. A variable that is declared outside a function is called a(n) \_\_\_\_\_\_\_\_ variable.
       1. class
       2. local
       3. global
       4. program
    3. Which one of the following creates a local variable?
       1. Declaring it outside of a function with the var keyword
       2. Declaring it outside of a function without the var keyword
       3. Declaring it inside a function with the var keyword
       4. Declaring it inside a function without the var keyword
    4. Which of the following is a primitive data type in JavaScript?
       1. Boolean
       2. Integer
       3. Floating-point
       4. Logical
    5. Which of the following describes JavaScript?
       1. Strongly typed
       2. Statically typed
       3. Loosely typed
       4. Untyped
    6. Which of the following is an integer?
       1. -2.5
       2. 6.02e23
       3. -11
       4. 0.03
    7. Which of the following is a Boolean value?
       1. 3.04
       2. true
       3. “Greece”
       4. 6.02e23
    8. Which of the following creates an empty string?
       1. null
       2. undefined
       3. ""
       4. 0
    9. Which of the following is a valid JavaScript statement?
       1. document.write('Boston, MA is called 'Beantown.'')
       2. document.write("Boston, MA is called "Beantown."")
       3. document.write("Boston, MA is called 'Beantown."')
       4. document.write("Boston, MA is called 'Beantown.'")
    10. Which of the following is a concatenation operator?
        1. >
        2. +
        3. ||
        4. ++
    11. Which of following is the JavaScript escape character?
        1. "
        2. '
        3. \
        4. /
    12. Which of the following is an arithmetic binary operator?
        1. +
        2. ||
        3. =
        4. &&
    13. Which of the following is an arithmetic unary operator?
        1. ++
        2. ||
        3. =
        4. &&
    14. What is the result of the statement 5 < 4?
        1. 1
        2. yes
        3. true
        4. false
    15. Write a simple function (or copy one used in this chapter), that includes the following parts, and then label the parts:
* Name
* Parameters
* Function braces
* Function statements

function addNumbers(number1, number2) {

var result = number1 + number2;

return result;

}

Name: addNumbers

Parameters: number1, number2

Function braces: { }

Function statements:

var result = number1 + number2;

return result;

* + 1. Explain the difference between prefix and postfix operators, and provide an example of each.

A prefix operator is placed before a variable name. A postfix operator is placed after a variable name.

++count uses a prefix operator.

count++ uses a postfix operator.

* + 1. What is the result of the following expression?  
       5 > 4? document.write("green") : document.write("blue");   
       Name the operators, and explain the steps you took to arrive at your answer.

The first operator is the greater than ( > ) operator. The second operator is an example of a conditional expression. It evaluates whether 5 > 4. Because this is true, it executes the first statement (document.write(“green”)). If the condition evaluated to false, it would instead execute the second statement.

* + 1. What is the result of the expression 5 % 4? Name the operator, and explain the steps you took to arrive at your answer.

The result is 1. This expression uses the modulus operator, which returns the remainder of dividing the first operand by the second. The integer result of 5 divided by 4 is 1, with a remainder of 1.

* + 1. Explain the difference between global and local variables, and describe how using or not using the var keyword can affect the scope of a variable.

A global variable is one that is declared outside a function and is available to all parts of your code. A local variable is declared inside a function and is available only within the function in which it is declared. If you declare a variable within a function and do not include the var keyword, in most cases the variable automatically becomes a global variable.

Case Projects

Individual Case Project

Students should submit a page from their personal site (created in Chapter 1) that incorporates a function. The function should perform a mathematical calculation based on user input.

Team Case Project

Students should submit a page from their team site (created in Chapter 1) that incorporates at least two functions. Each function should perform actions based on user input, which may include the following:

* validation
* personalization of the web page
* calculations