

## Exercise 5: Operators

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For this exercise, you'll create some HTML and JavaScript that uses some of the operators you've learned about. If you get totally stuck, there is a link to my solution at the bottom.

### Create the Code

In your text editor, create a new file. Refer back to the file you created in Exercise 3 (**JavaScriptAndHtml.html**) to create a similar file that:

1. Has two text boxes with ids of "num1" and "num2".
2. Each text box is in its own paragraph with text before it that says "Number 1:" and "Number 2:".
3. Has a button that says "Show Result" and calls a function called `displayResult`.
4. Has a paragraph with an id of "resultPar" that is empty.
5. Has a script block with the function `displayResult`.

The function `displayResult()` will add the two values together and display them in the `resultPar` paragraph. The code should look like this:

```
function displayResult() {  
    var result = Number(num1.value) + Number(num2.value);  
    resultPar.innerHTML = "Result: " + result;  
}
```

**Note:** What comes out of the text box will be of data type `String`. All though sometimes JavaScript can be smart enough to convert a string to a number, to be safe, you should call the **Number** function, which will make sure that the values in the text boxes are numbers that can be added.

**Note:** I've talked a little about what the `.innerHTML` does, but let me explain it in more detail. We've set up a paragraph with an `id` attribute of "resultPar". That means we can have a variable in the JavaScript code called **resultPar** that refers to that paragraph. When we say what we want to actually be in that paragraph, we set the `innerHTML` property. (Use the period after **resultPar** to indicate that it's a property.) A paragraph has HTML inside of it, and that's what the `innerHTML` property is. You can just put some text, and it will be displayed, or you can put some HTML, and then you can have bold, italic, links, images, etc.

Save the file as **operators.html** and load it into your browser. Put in two numbers and click Result. You should see the sum of the two numbers below.

Remember, if you have trouble, don't forget to open the JavaScript console and see if it gives you a hint as to why it's not working. If you don't remember how to open the console, just do a web search on "JavaScript console" and your browser name, and you'll find it pretty quickly.

## Not a Number

Try putting something in one of the text boxes that is not a number, like a word. The result will be NaN, which stands for “Not a Number”. This is how JavaScript handles when the Number function does not recognize the string as a valid number.

## Other operators

Next, you’ll modify the line:

```
var result = Number(num1.value) + Number(num2.value);
```

Replace the plus operator with another operator, save, and refresh the browser page. Then put in two numbers and click **Result**. Try it with these operators:

- -
- \*
- /
- %

For mode (%), try putting in a large number in the first text box and 10 in the second text box. The result will be the last digit. If you put 100 in the second text box, the result will be the last two digits.

## Assignment shortcuts

Under the line

```
var result = Number(num1.value) + Number(num2.value);
```

Add this line:

```
result++;
```

Do you remember what this does? If not, refer back to the previous lesson, or else look it up online. Save and refresh the browser and test it out.

Try replacing `result++;` with these lines and make sure you understand what they do:

- `result--;`
- `result += 10;`
- `result -= 10;`
- `result *= 10;`

## Order of operations

Delete the line you’ve been adding that modifies the result variable. Now, see if you can come up with an equation where the result is the average of the two numbers. (To average, you want to add the two numbers together and divide it by 2.) I want you to do this in one line, so you’re going to have to think about how order of operations work.

### Take a Look at How I've Done It

If you get stuck, you can look at how I've done this final piece:

<http://sdkbridge.com/prog1/Exercise5Answers.pdf>.