

```

1  // ***** Homework 6 Pt I script *****
2  // Function to process the entered number when the user clicks the submit button.
3  function processNumber() {
4      // Retrieve the entered value from the input field.
5      var input = document.getElementById("numberInput").value;
6
7      // Select the result display area.
8      var resultDiv = document.getElementById("result");
9
10     // Get the error message element where error messages will be displayed
11     var errorMessageDiv = document.getElementById("errorMessage");
12
13     // Convert the input to a floating-point number.
14     var number = parseFloat(input);
15
16     // Clear any existing content in the resultDiv and errorMessageDiv.
17     resultDiv.innerHTML = '';
18     errorMessageDiv.innerHTML = '';
19
20     // Check if the input is a valid floating-point number.
21     // If not, display an error message and exit the function.
22     if (!isValidNumber(input)) {
23         errorMessageDiv.innerHTML = "Please enter a valid number with at least 4 decimal
24         places.";
25         return;
26     }
27
28     // Perform various calculations on the number.
29     var roundedInt = Math.round(number); // Round to nearest integer.
30     var sqrtRoundedInt = Math.round(Math.sqrt(number)); // Calculate square root and
31     round to integer.
32     var tenths = number.toFixed(1); // Round to nearest tenth.
33     var hundredths = number.toFixed(2); // Round to nearest hundredth.
34     var thousandths = number.toFixed(3); // Round to nearest thousandth.
35
36     // Display the original number and the results of calculations.
37     resultDiv.innerHTML = `You typed number ${number}<br>
38     Rounded to the nearest integer = ${roundedInt}<br>
39     Square root rounded to integer = ${sqrtRoundedInt}<br>
40     Rounded to the nearest 10th position = ${tenths}<br>
41     Rounded to the nearest 100th position = ${hundredths}<br>
42     Rounded to the nearest 1000th position = ${thousandths}`;
43 }
44
45 // Function to check if a string is a valid floating-point number with at least 4
46 // decimals.
47 function isValidNumber(numStr) {
48     return /^\.d*\.\d{4,}$/.test(numStr);
49 }
50
51 // Function to clear the results from the resultDiv.
52 function clearResults() {
53     var resultDiv = document.getElementById("result");
54     resultDiv.innerHTML = '';
55     var errorMessageDiv = document.getElementById("errorMessage");
56     errorMessageDiv.innerHTML = '';
57 }

```