Calling Function CircleArea(n)

Circle Areas	
Radius	**Area**
1	3.14159
2	12.56637
4	50.26548
8	201.06193
16	804.24772
34	3216.99088
64	12867.96351

Using a Loop Within the Table

Format: ● no format
○ rounded to an integer
○ to 5 decimal places
○ to 5 decimal places with commas in integer part

Circle Areas	
Radius	**Area**
1	3.141592653589793
2	12.566370614359172
4	50.26548245743669
8	201.06192982974676
16	804.247719318987
32	3216.990877275948
64	12867.963509103793

1

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32	3,216.99088
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2

Functions to Return Today's Date in ISO8601 Format

Call to function `GetTodayISO8601_v1()` returns:

     2023-05-26

Call to function `GetTodayISO8601_v2()` returns:

     2023-05-26

Call to function `GetTodayISO8601_v3()` returns:

     2023-05-26T20:55:18.073Z

Call to function `GetTodayISO8601_v4()` returns:

     2023-05-26

3

```
1   <!DOCTYPE html>
2   <html>
3   <head>
4     <meta charset="utf-8">
5     <title>Function Demonstrations</title>
6   <!--
7     File:  cssdweb.edu/Student Resources/Website Development I/CodeSamples/
8            FunctionDemonstrations_v2.html
9     Copyright (c) 2022-2023 by Jesse Heines.  All rights reserved.  May be freely
10       copied or excerpted for educational purposes with credit to the author.
11     updated by JMH on May 26, 2023 at 3:27 PM
12   -->
13     <style>
14       input[type="radio"] {
15         margin-left: 1em ;
16       }
17     </style>
18
19     <script type="text/javascript">
20
21       // get the format number for second table if supplied
22       var strQuery = window.location.search ;
23       var urlParams = new URLSearchParams( strQuery ) ;
24           // Note that URLSearchParams is a special type of function called a constructor.
25           // It takes the query string as its argument and constructs an object from which
26           // we can extract the values by their names.
27       var strFormatNumber = urlParams.get( "format" ) ;
28           // Note that the .get function always returns a string, not a number.
29       // console.log( strFormatNumber ) ;
30       // console.log( typeof strFormatNumber == "undefined" ) ;
31       // console.log( strFormatNumber == null ) ;
32       // console.log( strFormatNumber === null ) ;
33
34       // set the default format number if one is not specified as a parameter
35       if ( strFormatNumber == null ) {
36         strFormatNumber = 0 ;
37       }
38
39       // reload the current page with the selected format number as a parameter
40       var ReloadWithFormat = function( nFormat ) {
41         window.location = window.location.pathname + "?format=" + nFormat ;
42       } ;
43
44       // indicate which radio button was selected
45       var SelectFormatRadioButton = function( nFormat ) {
46         // console.log( typeof nFormat ) ;
47         switch ( nFormat ) {
48           case 0 :
49             document.getElementById( "zero" ).checked = true ;  break ;
50           case 1 :
51             document.getElementById( "one" ).checked = true ;   break ;
52           case 2 :
53             document.getElementById( "two" ).checked = true ;   break ;
54           case 3 :
55             document.getElementById( "three" ).checked = true ; break ;
56         }
57       }
58
59       // return the area of a circle given its radius
60       var CircleArea = function( radius ) {
61         var area = Math.PI * radius * radius ;
62         return area.toFixed( 5 ) ;
63       }
```

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```
 65        // return the area of a circle given its radius in one of three formats
 66        var CircleArea2 = function( radius, nFormat ) {
 67          if ( typeof nFormat == "undefined" ) {
 68            nFormat = 2 ;
 69          }
 70          var area = Math.PI * radius * radius ;
 71          switch ( nFormat ) {
 72            case 0 : return area ; break ;
 73            case 1 : return Math.round( area ) ; break ;
 74            case 2 : return area.toFixed( 5 ) ; break ;
 75            case 3 :
 76              return area.toLocaleString( "en-US", { minimumFractionDigits: 5 } ) ;
 77              break ;
 78          }
 79        }
 80
 81        // return today's date in ISO8601 format (YYYY-MM-DD with leading 0s if necessary)
 82        GetTodayISO8601_v1 = function() {
 83          var now = new Date() ;      // today's date as an object
 84          var strNowISO8601 = "" ;    // initialize this variable as a string
 85
 86          // set year
 87          if ( now.getFullYear() < 1900 ) {
 88            strNowISO8601 += ( now.getFullYear()+1900 ) ;
 89          } else {
 90            strNowISO8601 += now.getFullYear() ;
 91          }
 92
 93          // set month
 94          if ( now.getMonth()+1 < 10 ) {
 95            strNowISO8601 += "-0" + ( now.getMonth()+1 ) ;
 96          } else {
 97            strNowISO8601 += "-" + ( now.getMonth()+1 );
 98          }
 99
100          // set day
101          if ( now.getDate()+1 < 10 ) {
102            strNowISO8601 += "-0" + ( now.getDate() ) ;
103          } else {
104            strNowISO8601 += "-" + ( now.getDate() ) ;
105          }
106
107          // return fully constructed string
108          return strNowISO8601 ;
109        }
110
111        // return today's date in ISO8601 format
112        GetTodayISO8601_v2 = function() {
113          var now = new Date() ;      // today's date as an object
114
115          // modified per suggestion by student Nathan Gilbert on January 16, 2009 at 9:52 PM
116          var strNowISO8601 = "" +
117              ( now.getFullYear() < 1900 ? now.getFullYear()+1900 : now.getFullYear() ) ;
118          strNowISO8601 += "-" +
119              ( now.getMonth()+1 < 10 ? "0" + (now.getMonth()+1) : now.getMonth()+1 ) ;
120          strNowISO8601 += "-" +
121              ( now.getDate() < 10 ? "0" + now.getDate() : now.getDate() ) ;
122
123          return strNowISO8601 ;
124        }
125
```

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```
126        // return today's date in ISO8601 format
127        GetTodayISO8601_v3 = function() {
128          var now = new Date() ;         // today's date as an object
129
130          // https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/
131          //     Global_Objects/Date/toISOString
132          var strNowISO8601 = now.toISOString() ;
133
134          return strNowISO8601 ;
135        }
136
137        // return today's date in ISO8601 format
138        GetTodayISO8601_v4 = function() {
139          var now = new Date() ;         // today's date as an object
140
141          // https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/
142          //     Global_Objects/Date/toISOString
143          // https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/
144          //     Global_Objects/String/substring
145          var strNowISO8601 = now.toISOString().substring( 0, 10 ) ;
146
147          return strNowISO8601 ;
148        }
149      </script>
150
151      <style>
152        table.CircleAreas tr td:nth-child(1) {
153          text-align : center ;
154        }
155        table.CircleAreas tr td:nth-child(2) {
156          text-align : right ;
157        }
158      </style>
159    </head>
160
161    <body onload="SelectFormatRadioButton( nFormat ) ;">
162      <h3>Calling Function CircleArea( n )</h3>
163      <table class="CircleAreas" cellspacing="0" cellpadding="5" border="1">
164        <tr>
165          <th colspan="2">Circle Areas</th>
166        </tr>
167        <tr>
168          <th>Radius</th>
169          <th>Area</th>
170        </tr>
171        <tr>
172          <td>1</td>
173          <td>
174            <script>
175              document.writeln( CircleArea( 1 ) ) ;
176            </script>
177          </td>
178        </tr>
179        <tr>
180          <td>2</td>
181          <td>
182            <script>
183              document.writeln( CircleArea( 2 ) ) ;
184            </script>
185          </td>
186        </tr>
```

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```
187        <tr>
188          <td>4</td>
189          <td>
190            <script>
191              document.writeln( CircleArea( 4 ) ) ;
192            </script>
193          </td>
194        </tr>
195        <tr>
196          <td>8</td>
197          <td>
198            <script>
199              document.writeln( CircleArea( 8 ) ) ;
200            </script>
201          </td>
202        </tr>
203        <tr>
204          <td>16</td>
205          <td>
206            <script>
207              document.writeln( CircleArea( 16 ) ) ;
208            </script>
209          </td>
210        </tr>
211        <tr>
212          <td>34</td>
213          <td>
214            <script>
215              document.writeln( CircleArea( 32 ) ) ;
216            </script>
217          </td>
218        </tr>
219        <tr>
220          <td>64</td>
221          <td>
222            <script>
223              document.writeln( CircleArea( 64 ) ) ;
224            </script>
225          </td>
226        </tr>
227      </table>
228
229      <br><hr>
230
231      <h3>Using a Loop Within the Table</h3>
232      <!-- format selection table -->
233      <table cellspacing="0" cellpadding="0" border="0" style="margin-bottom: 1em">
234        <tr>
235          <td><em>Format:</em></td>
236          <td><input type="radio" id="zero" onclick="ReloadWithFormat( 0 );">
237              <label for="zerp">no format</label></td>
238        </tr>
239        <tr>
240          <td></td>
241          <td><input type="radio" id="one" onclick="ReloadWithFormat( 1 );">
242              <label for="one">rounded to an integer</label></td>
243        </tr>
244        <tr>
245          <td></td>
246          <td><input type="radio" id="two" onclick="ReloadWithFormat( 2 );">
247              <label for="two">to 5 decimal places</label></td>
248        </tr>
```

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```
249        <tr>
250          <td></td>
251          <td><input type="radio" id="three" onclick="ReloadWithFormat( 3 );">
252              <label for="three">to 5 decimal places with commas in integer part</label></td>
253        </tr>
254      </table>
255
256      <!-- results output table -->
257      <table class="CircleAreas" cellspacing="0" cellpadding="5" border="1">
258        <tr>
259          <th colspan="2">Circle Areas</th>
260        </tr>
261        <tr>
262          <th>Radius</th>
263          <th>Area</th>
264        </tr>
265        <script>
266          var radius = 1 ;   // initial circle radius
267          var nFormat ;        // variable declaration without an initial value
268          // console.log( strFormatNumber ) ;
269          if ( strFormatNumber == null ) {
270            nFormat = 0 ;     // default format number
271          } else {
272            nFormat = parseInt( strFormatNumber ) ;  // format option read from URL
273          }
274          for ( var k = 1 ; k <= 7 ; k++ ) {
275            document.writeln( "<tr>" ) ;
276            document.writeln( "<td>" + radius + "</td>" ) ;
277            document.writeln( "<td>" + CircleArea2( radius, nFormat ) + "</td>" ) ;
278            document.writeln( "</tr>" ) ;
279            radius = radius * 2 ;
280          }
281        </script>
282      </table>
283
284      <br><hr>
285
286      <h3>Functions to Return Today's Date in ISO8601 Format</h3>
287      <p>Call to function <code><strong>GetTodayISO8601_v1()</strong></code> returns:</p>
288      <blockquote>
289        <script>
290          document.writeln( GetTodayISO8601_v1() ) ;
291        </script>
292      </blockquote>
293      <p>Call to function <code><strong>GetTodayISO8601_v2()</strong></code> returns:</p>
294      <blockquote>
295        <script>
296          document.writeln( GetTodayISO8601_v2() ) ;
297        </script>
298      </blockquote>
299      <p>Call to function <code><strong>GetTodayISO8601_v3()</strong></code> returns:</p>
300      <blockquote>
301        <script>
302          document.writeln( GetTodayISO8601_v3() ) ;
303        </script>
304      </blockquote>
305      <p>Call to function <code><strong>GetTodayISO8601_v4()</strong></code> returns:</p>
306      <blockquote>
307        <script>
308          document.writeln( GetTodayISO8601_v4() ) ;
309        </script>
310      </blockquote>
311    </body>
312  </html>
```

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