EXERCISE ON THE SKEPTICISM OF USING CALCULATOR GRAPHS.

In this exercise you will use your calculator to graph \( y = \sin(2\pi x) \) with different window settings. Set your calculator to radian mode with the window settings \( y_{\min} = -1, \ y_{\max} = 1, \ x_{\min} = 0, \ \ x_{\text{ scl}} = 0 \). The value of \( x_{\max} \) will depend on the number of pixels used to fill up the width of your calculator’s screen.

Use the following values for the number of pixels, \( p \), for your model of calculator:

<table>
<thead>
<tr>
<th>Model</th>
<th>TI-81</th>
<th>TI-82, 83</th>
<th>TI-85, 86</th>
<th>TI-89</th>
<th>TI-92</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of ( p )</td>
<td>95</td>
<td>94</td>
<td>126</td>
<td>158</td>
<td>239</td>
</tr>
</tbody>
</table>

For each graph, estimate the period by using only the graph. Include a sketch of the graph too.

a) set \( x_{\max} = p + 1 \)

b) set \( x_{\max} = p + 2 \)

c) set \( x_{\max} = p + 3 \)

d) set \( x_{\max} = p - 3 \)

You might want to try some other values of \( x_{\max} \) close to (bit different from) the value of \( p \).

Your function \( y = \sin(2\pi x) \) never changed. So its period remained fixed. Can you explain why the graphs produced different estimates for the period?

To close the exercise, set \( x_{\max} = p \). Can you explain what has happened?