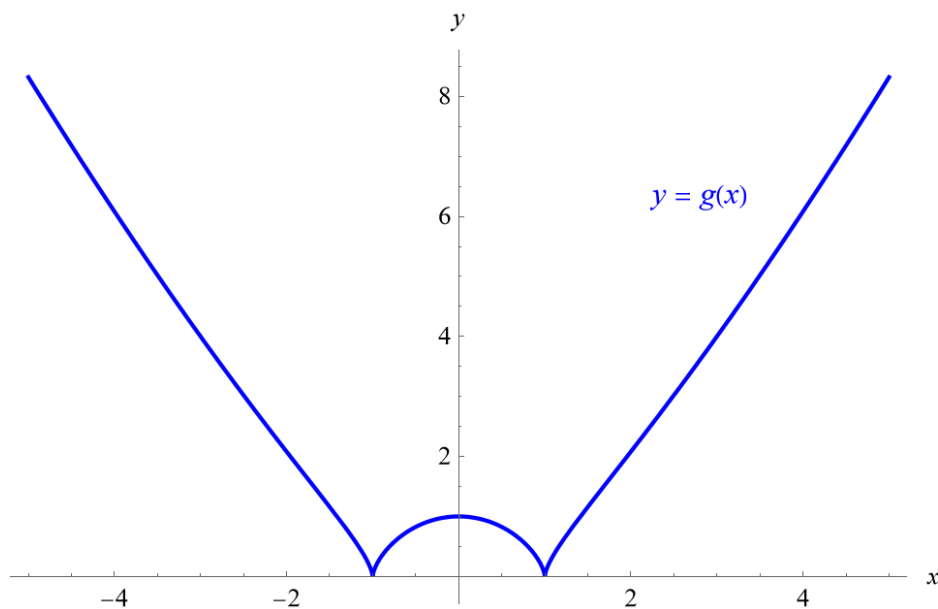


## Exercise 46

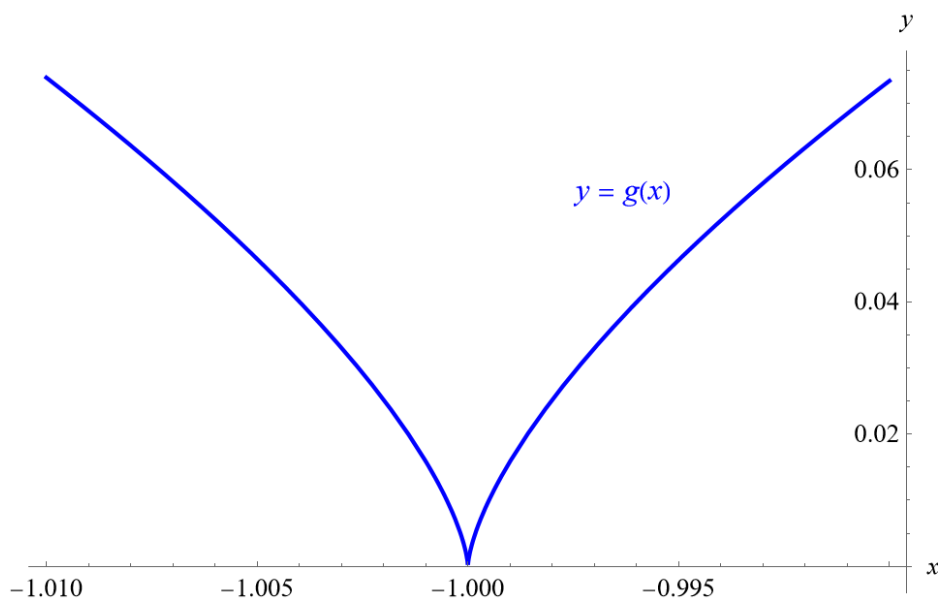
Zoom in toward the points  $(1, 0)$ ,  $(0, 1)$ , and  $(-1, 0)$  on the graph of the function  $g(x) = (x^2 - 1)^{2/3}$ . What do you notice? Account for what you see in terms of the differentiability of  $g$ .

### Solution

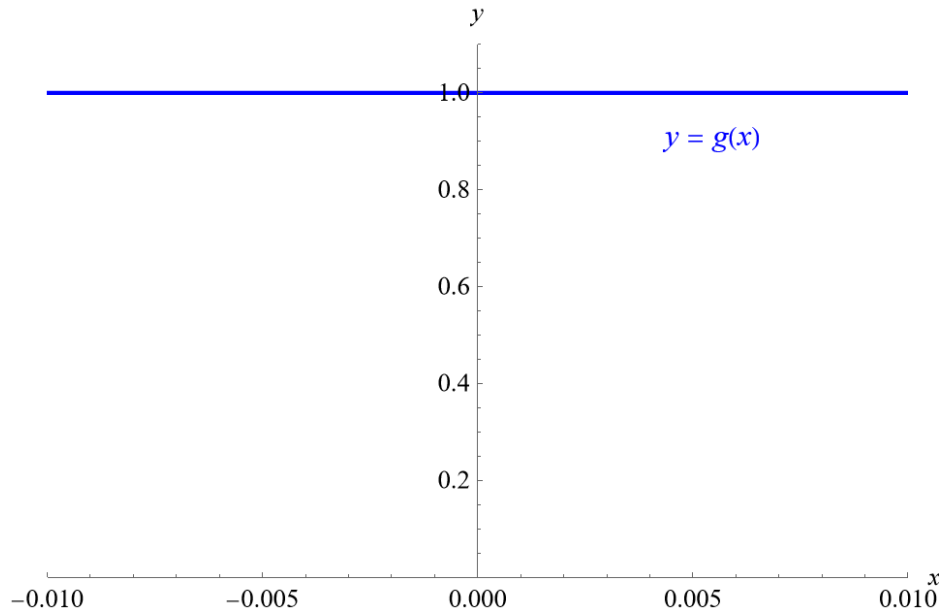
Below is a graph of  $g(x)$  versus  $x$ .



Zoom in towards the point  $(-1, 0)$ . Notice that no matter how much you zoom in, the graph never becomes a straight line.



Now zoom in towards the point  $(0, 1)$ . Notice that the graph is practically a straight line.



Zoom in towards the point  $(1, 0)$ . Notice that no matter how much you zoom in, the graph never becomes a straight line.

