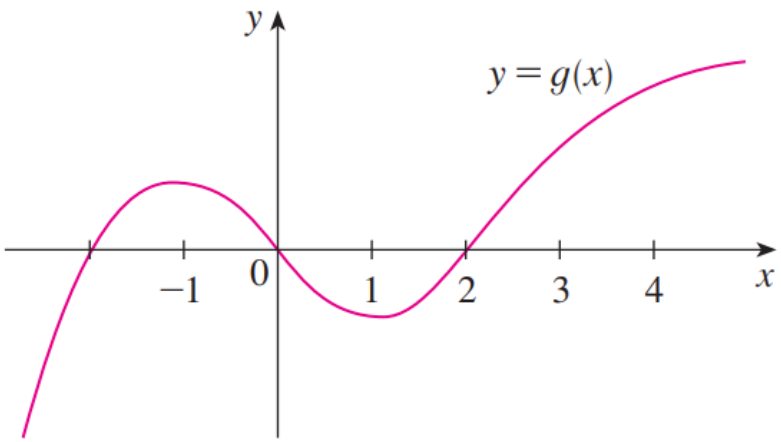
Exercise 17

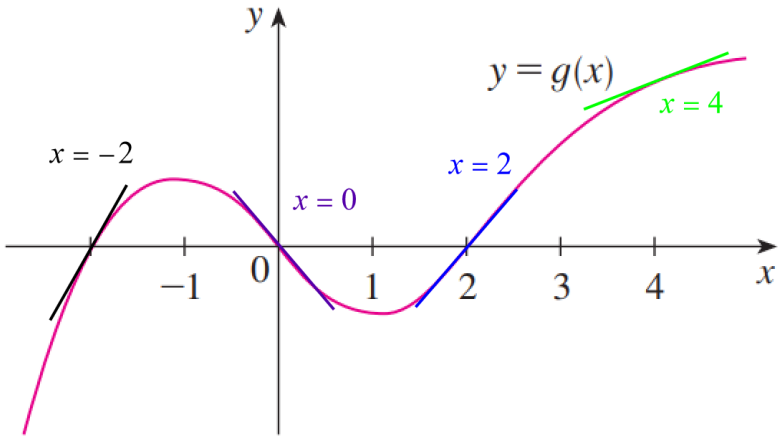
For the function g whose graph is given, arrange the following numbers in increasing order and explain your reasoning:

$$0 \qquad g'(-2) \qquad g'(0) \qquad g'(2) \qquad g'(4)$$



Solution

$g'(x)$ represents the derivative, or the slope of the tangent line, of g at x. The tangent lines at $x = -2$ and $x = 0$ and $x = 2$ and $x = 4$ are drawn.



The slope at $x = -2$ is highest, followed by the one at $x = 2$, followed by the one at $x = 4$. The slope at $x = 0$ is negative, so it's the lowest.

$$g'(0) < 0 < g'(4) < g'(2) < g'(-2)$$