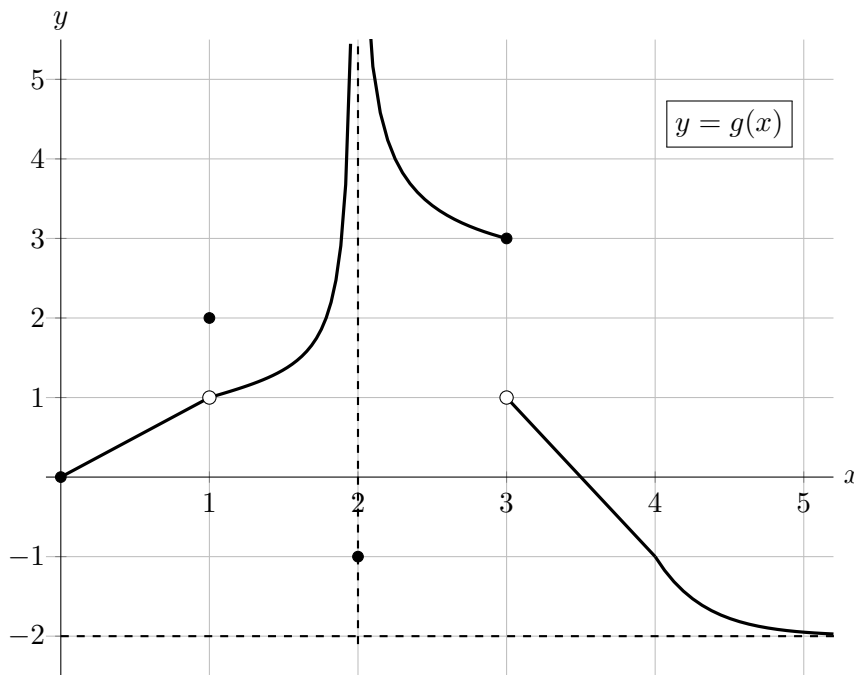


1. [9 points] Below is a portion of the graph of an odd function  $g(x)$ , which has domain  $(-\infty, \infty)$  even though the graph below only shows part of the function with  $x \geq 0$ . Note that  $g(x)$  is linear on the intervals  $(0, 1)$  and  $(3, 4)$ , has a sharp corner at  $x = 4$ , has a vertical asymptote at  $x = 2$ , a horizontal asymptote at  $y = -2$ , and is decreasing for  $x > 4$ .



- a. [1 point] At which of the following values of  $x$  is  $g(x)$  continuous? *Circle all correct answers.*

$x = 1$        $x = 2$        $x = 3$        $x = 4$       NONE OF THESE

- b. [8 points] Find the **exact** numerical value of each expression below, if possible. For any values that do not exist, including if they are limits that diverge to  $\pm\infty$ , write DNE. If there is not enough information to find a given value or determine whether it exists, write NEI. *You do not need to show work. As a reminder,  $g(x)$  is an odd function.*

$$g(g(3) - 1) = \underline{-1}$$

$$\lim_{x \rightarrow 3^+} g(x) = \underline{1}$$

$$\lim_{x \rightarrow 4} g(x) = \underline{-1}$$

$$\lim_{x \rightarrow -3^+} g(x) = \underline{-3}$$

$$\lim_{x \rightarrow 2} g(x) = \underline{\text{DNE}}$$

$$\lim_{h \rightarrow 0} \frac{g(3.5 + h) - g(3.5)}{h} = \underline{-2}$$

$$\lim_{x \rightarrow 3^-} g(x) = \underline{3}$$

$$\lim_{x \rightarrow \infty} g(x) = \underline{-2}$$