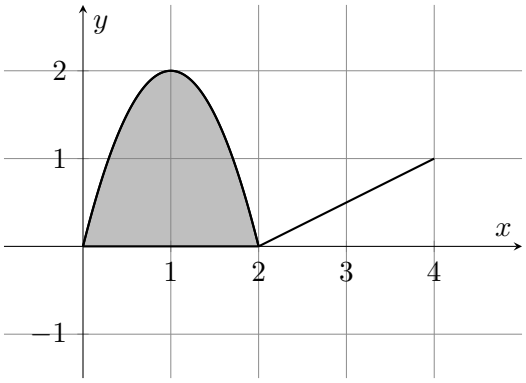
3. [11 points] An **even** function $h(x)$, which is defined for all real numbers, is graphed on the interval $[0, 4]$ below. Note that $h(x)$ is linear on the interval $(2, 4)$, and that the shaded region has area 3.



a. [3 points] The function $h(x)$ has a continuous antiderivative, $H(x)$, which satisfies $H(2) = 2$. Complete the following table of values for $H(x)$.

x	-2	0	2	4
$H(x)$	-4	-1	2	3

b. [8 points] Sketch a graph of $H(x)$ on the interval $[-2, 4]$ using the axes provided. Make sure to clearly label the values at the points in the table above and also make it clear where $H(x)$ is increasing or decreasing, and where $H(x)$ is concave up, concave down, or linear.