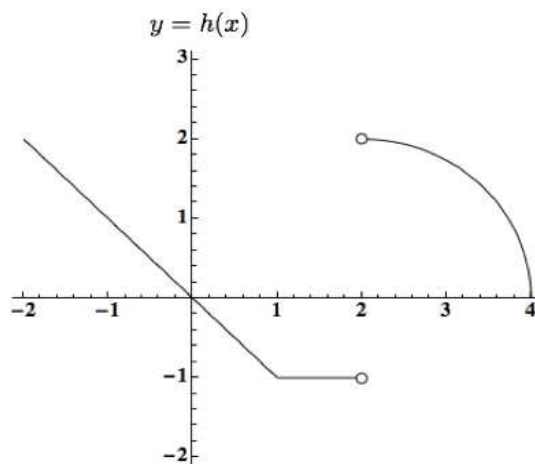**5.** [14 points]

a. [5 points] The graph of the function $h(x)$, shown below, consists of line segments and a quarter of a circle.

Let $f(x)$ be an antiderivative of $h(x)$ with $f(1) = 0$. Assume f is continuous. Fill in the table of values of $f(x)$, provided below, at the specified points.

x	-2	-1	0	1	2	4
$f(x)$	-1.5	0	0.5	0	-1	$\pi - 1$

b. [9 points] Sketch the function $f(x)$. Make sure your graph indicates clearly where $f(x)$ is increasing, decreasing, concave up, and concave down, and appropriately reflects any critical points.