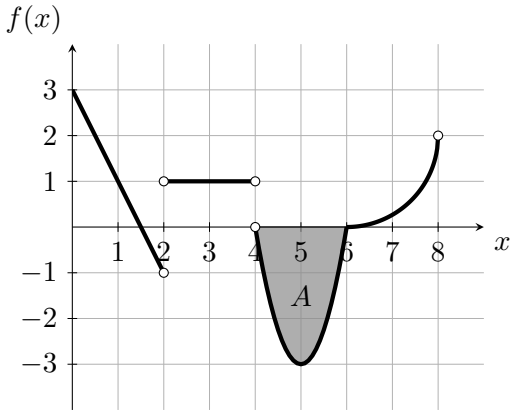
2. [15 points] An **even** function $f(x)$ is graphed below. The area of the shaded region A is 4. On $[6, 8]$, the graph of $f(x)$ is a quarter circle with radius 2 centered at $(6, 2)$.



Let $F(x)$ be a continuous antiderivative of $f(x)$ satisfying $F(2) = 1$.

a. [5 points] Use the graph of $f(x)$ to complete the table below with the exact values of $F(x)$.

x	-2	0	2	4	6	8
$F(x)$	-3	-1	1	3	-1	$3-\pi$

b. [10 points] On the axis below, sketch a graph of $F(x)$ on the interval $[-2, 8]$. Be sure to pay attention to:

- the values of $F(x)$ you found in part (a).
- where $F(x)$ is increasing, decreasing, or constant.
- where $F(x)$ is not differentiable.
- where $F(x)$ is concave up, concave down, or linear.