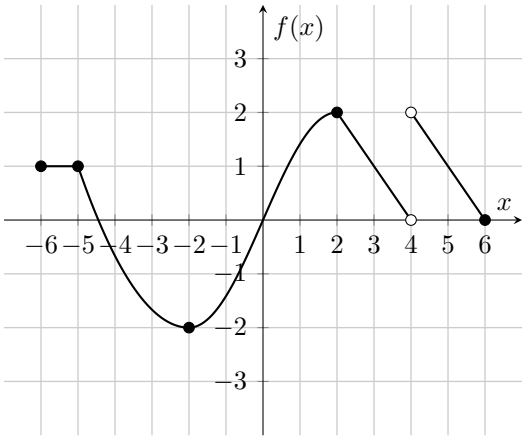
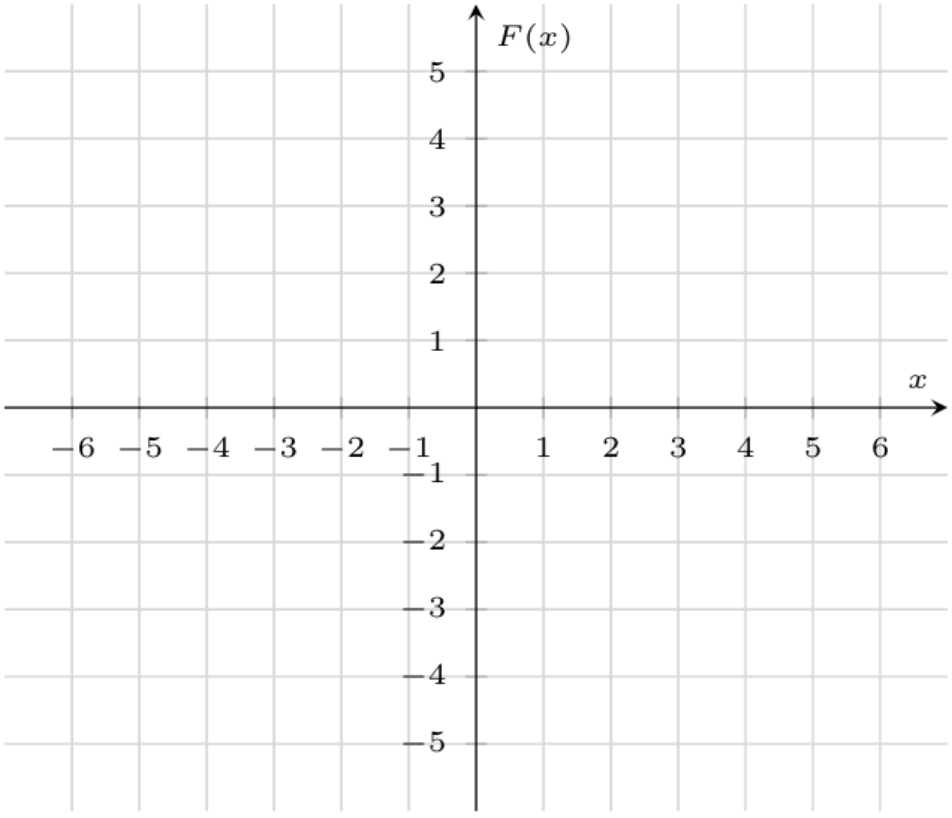
**2**. [10 points]




Sketch a continuous antiderivative $F(x)$ to the function $f(x)$ graphed above, such that $F(2) = -1$. The function $f(x)$ is **odd** on $[-2, 2]$. Make sure to clearly label the input and output values at $x = -2, 2, 5$, and 6. Be sure to make it clear where the graph is concave up, concave down, or linear, and where it is increasing or decreasing.



*Solution:*

The required labeled values are included in the graph below, and the value at $x = -6$ should be one less than the value at $x = -5$. The function should be increasing on $[-6, -4.5]$ and $[0, 6]$, decreasing on $[-4.5, 0]$, with maximum and minimum at the transition points (Near $-4.5$ is sufficient, as there is no way to determine this exactly). The graph should be concave down on $[-6, -2]$, $[2, 4]$ and $[4, 6]$, and concave up on $[-2, 2]$. The graph should level off approaching 4 from the left, as the graph of the derivative is approaching zero.