6. [12 points] On the axes provided below, sketch the graph of a single function $y = g(x)$ satisfying all of the following:

- $g(x)$ is defined for all x in the interval $-6 < x < 6$.
- For all x in the interval $-6 < x < -4$, the function $g(x)$ is continuous at x and $g'(x) > 0$.
- $g(-4) = -1$.
- $\lim_{x \to -4^+} g(x) = 2$.
- $g(-3) = 1$.
- $g(-2) = -1$.
- The function $g(x)$ is continuous on the interval $[-3, -1]$.
- The average rate of change of $g(x)$ between $x = -3$ and $x = -1$ is 2.
- $g'(1) = 0$.
- $g(x)$ is <u>not</u> continuous at $x = 2$.
- The function $g(x)$ is continuous on the interval $3 < x < 6$.
- The slope of the tangent line to the graph of $y = g(x)$ at $x = 3$ is positive.
- $g(x)$ is increasing and concave down on the interval $4 < x < 6$.

Make sure that your graph is large and unambiguous. Note that many solutions are possible.