6. [11 points] On the axes provided below, sketch the graph of a single <u>function</u> $y = g(x)$ satisfying all of the following:

- $g(x)$ is defined for <u>all</u> x in the interval $-6 < x < 6$.
- $g(x)$ has at least <u>5</u> critical points in the interval $-6 < x < 6$.
- The global maximum value of $g(x)$ on the interval $-5 \leq x \leq -3$ is 4, and this occurs at $x = -4$.
- $g(x)$ is <u>not</u> continuous at $x = -2$.
- $g'(x)$ (the derivative of g) has a local maximum at $x = 0$.
- $g(x)$ is continuous but <u>not</u> differentiable at $x = 1$.
- $g''(x) \geq 0$ for all x in the interval $2 < x < 4$.
- $g(x)$ has at least one local minimum on the interval $4 < x < 6$ but does not have a global minimum on the interval $4 < x < 6$.
- $g(x)$ has an inflection point at $x = 5$.

Make sure your sketch is large and unambiguous.

Graph of $y = g(x)$

There are many possible solutions. One is shown below.