

4. [10 points] On the axes provided below, sketch the graph of a single function $f(x)$ that satisfies all of the following conditions:

- the function $f(x)$ has domain $-6 \leq x \leq 6$
- $f(0) = -3$
- $f(x)$ is continuous everywhere except at $x = -3$ and $x = -1$
- $f'(x) = 2$ for $-6 < x < -4$
- $\lim_{x \rightarrow -3^-} f(x) = 4$
- $\lim_{x \rightarrow -1^-} f(x) = 3$
- $\lim_{x \rightarrow -1^+} f(x) = -4$
- the average rate of change of $f(x)$ from $x = 0$ to $x = 6$ is $\frac{1}{2}$
- $f'(3) = 0$
- $f(x)$ is decreasing from $x = 4$ to $x = 6$

Solution:

