

3. [12 pts.] Sketch the graph of the function f with the following properties.
Label significant points and lines.

- f is defined and differentiable for all real numbers.
- $f(-1) = 1$, f has a global maximum value of 4 and f has no global minimum
- $f'(x) > 0$ for x in the intervals $(-\infty, -3)$ and $(0, \infty)$
- $f'(x) < 0$ for x in the interval $(-3, 0)$.
- $f''(x) > 0$ for x in the interval $(-1, 1)$
- $f''(x) < 0$ for x in the intervals $(-\infty, -1)$ and $(1, \infty)$.
- $\lim_{x \rightarrow \infty} f(x) = 2$.

