1. Sketch the graph of a function $f$ for which $f(x) > 0$ and $f'(x) > 0$ for all $x$.

2. Sketch the graph of a function $f$ for which $f(x) < 0$ and $f'(x) > 0$ for all $x$.

3. Let $f$ be a function and $x_0$ a point in its domain and suppose that $f'$ exists for all $x$ in the domain of $f$. If $x_0$ is a local minimum point of $f$ is it possible that $f'(x_0) > 0$?

4. Suppose that $f'(x_0) = 0$. Is it necessarily true that if $x_0$ is a local minimum point for $f$ then $f'(x) < 0$ for $x < x_0$ and $f'(x) > 0$ for $x > x_0$?