1. Sketch the graph of a function that is continuous over the interval \([-2, 4]\) and differentiable over the interval \((-2, 4)\) and has the following characteristics:

- An absolute maximum at \((4, f(4))\)
- A relative minimum at \((2, f(2))\)
- An absolute minimum at \((2, f(2))\)
- A relative maximum at \((0, f(0))\)

2. Sketch the graph of a function \(y = f(x)\) with the following characteristics.

\(f\) is continuous for all \(x\)

\(f(-2) = f(2) = 0\)

\(f(0) = 4\)

\(f'(0)\) is undefined

\(f'(x) > 0\) for \(x < 0\)

\(f'(x) < 0\) for \(x > 0\)

\(f''(x) > 0\) for all \(x \neq 0\)

\(\lim_{x \to \pm \infty} f(x) = -2\)
3. Use the graph of \( f'(x) \) to sketch the graph a function, \( f(x) \).

4. Use the graph of \( f(x) \) to sketch the graph a function, \( f'(x) \) and \( f''(x) \)