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6. If \( f \) is continuous at \( c \), then \( \lim (f(x_n)) = f(c) \), since \( c = \lim (x_n) \). Conversely, since \( 0 \leq j_f(c) \leq f(x_{2n}) - f(x_{2n+1}) \), it follows that \( j_f(c) = 0 \), so \( f \) is continuous at \( c \).

10. If \( f \) has an absolute maximum at \( c \in (a, b) \), and if \( f \) is injective, we have \( f(a) < f(c) \) and \( f(b) < f(c) \). Either \( f(a) \leq f(b) \) or \( f(b) < f(a) \). In the first case, either \( f(a) = f(b) \) or \( f(a) < f(b) < f(c) \), whence there exists \( b' \in (a, c) \) such that \( f(b') = f(b) \). Either possibility contradicts the assumption that \( f \) is injective. The case \( f(b) < f(a) \) is similar.

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6.1

4. Note that \( \left| f(x)/x \right| \leq |x| \) for \( x \in \mathbb{R} \).

9. If \( f \) is an even function, then \( f'(-x) = \lim_{h \to 0} [f(-x + h) - f(-x)]/h = -\lim_{h \to 0} [f(x - h) - f(x)]/(-h) = -f'(x) \).