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Q.1 Find the absolute maximum and minimum values of $f(x) = \sin(x)$, $-2\pi \leq x \leq 2\pi$

Q2. Verify that $f(x) = x\sqrt{x+6}$, $[-6, 0]$ satisfies **Rolle's Theorem** and then find all values that satisfy the conclusion of Rolle's Theorem.

Q3. If $f(x) = x \ln(x)$, Find the intervals for which the function is

- Increasing and Decreasing
- Concave upward or downward and inflection points.