

Extreme Values and the Mean Value Theorem - Worksheet

1. Find the critical points of the function $f(x) = x^3 - 9x^2 + 24x - 10$.
2. Find the critical points of the function $f(x) = |x|$.
3. Find the absolute maximum and absolute minimum of $f(x) = 2x^3 - 15x^2 + 24x + 7$ on $[0, 6]$.

4. Find the absolute maximum of $f(x) = 1 - (x - 1)^{2/3}$ on $[-1, 2]$

5. Verify that $f(x) = \sqrt{x}$ satisfies the hypotheses of the Mean Value Theorem on $[1, 9]$.
Find all numbers c that satisfy the Mean Value Theorem.

6. Analyze the critical points of $f(x) = x^3 - 27x - 20$.