
MATH241 4.1, 4.2, and 4.3 Practice

Problem 1: Find the absolute maximum and absolute minimum values for $f(x) = x^3 - 6x + 2$ on $[-3, 1]$.

Solution:

Problem 2: Show that the function $f(x) = 2x^3 - 3x + \sqrt{x}$ satisfies the hypotheses of the Mean Value Theorem on the interval $[0, 4]$. Then find all values c in $(0, 4)$ that satisfy the conclusion of the Mean Value Theorem.

Solution:

Problem 3: Identify the intervals where $f(x) = x^{2/3}(x - 5)$ is increasing or decreasing, and find the local maximum and minimum values of f (when they exist).

Solution:

Problem 4: Let $f(x) = 17 - x^{4/5}$. Show $f(-1) = f(1)$, but there is no number c in the interval $(-1, 1)$ such that $f'(c) = 0$.

Solution: