

8. Can Rolle's theorem be applied to $g(x) = -x^2 + 10x$ on the interval $[0, 10]$? If Rolle's theorem can be applied, find all values of c in $(0, 10)$ such that $f'(c) = 0$.

9. Can the Mean Value Theorem be applied to $f(x) = \frac{1}{x^2}$ over the interval $[-1, 1]$? If so, find all values of c that satisfies the theorem.

10. Determine whether the Mean Value Theorem can be applied to the function $f(x) = x^2$ on the closed interval $[3, 9]$. If the Mean Value Theorem can be applied, find all numbers c in the open interval $(3, 9)$ that satisfies the theorem.

11. The height of a tree at time t is given by a twice-differentiable function, $H(t)$. Selected values of $H(t)$ are given below.

Time (years)	2	3	5	7	10
$H(t)$ (meters)	1.5	2	6	11	15

A. Estimate $H'(6)$. Show the computation that leads to your answer. Include the appropriate units.

B. Explain why there must be at least one time t , for $3 < t < 5$ such that $H'(t) = 2$.