Rolle's theorem

1. State Rolle's theorem

2. State and Prove Rolle's theorem.

3. Verify Rolle's theorem for $f(x) = x^2$ in the interval $(-1, 1)$

4. Test whether Rolle's theorem is applicable for $f(x) = \sin x$ in the interval $(0, \pi)$

5. Verify Rolle's theorem for $f(x) = |x|$ on $(-1, 1)$

6. Verify Rolle's theorem for $f(x) = x^2 + 5x - 6$ in the interval $(-6, 1)$

7. Verify Rolle's theorem for $f(x) = 2x^3 + x^2 - 4x - 2$ over $(-\sqrt{2}, \sqrt{2})$

8. Verify Rolle's theorem for the function $f(x) = (x-2)(x-3)(x-4)$ on an interval $(2, 4)$

9. Verify the Rolle's theorem for $f(x) = 3x^3 + 7x^2 - 11x - 15$

10. Verify Rolle's theorem for the function

$$f(x) = (x-2)(x-3)(x-4) \text{ in } [2,3]$$

11. Verify the Rolle's theorem for

$f(x) = x^3 - 3x^2 + 2x$ in the interval $[0,2]$

12. Verify Rolle's theorem for the function

$$f(x) = x^3 - 6x^2 + 11x - 6$$

13. Verify Rolle's theorem for the function

$f(x) = 2 - 3x + x^2$ in the interval $(1,2)$

14.

1. Verify Rolles theorem for the function

$$f(x) = x^3 - 6x^2 + 11x - 6$$

2. Verify the truth of Rolles theorem for the function $f(x) = x^2 - 3x + 2$ in the interval $(1,2)$

Mean Value Theorem

1. State Mean Value theorem.

2. State and Prove Mean Value Theorem

3. Find the value of c in the Mean Value theorem and verify Mean Value theorem for $f(x) = x^3 - 2x^2 + 3x - 2$, in $[0, 2]$

4. Find the value of c and verify the mean value theorem for

$$f(x) = x(x-1)(x-2) \text{ in } [0, \tfrac{1}{2}]$$

5. Verify Mean Value theorem for the function $f(x) = 3x^2 - 10x + 12$, $x \in [2, 7]$

6. Verify Mean Value theorem for the function $f(x) = 2x^2 - 7x + 10$, $x \in [2, 5]$

7. Verify Mean Value theorem for the function $f(x) = 3 + 2x - x^2$ in the interval $(0, 1)$

8. Verify Mean Value theorem for the function $f(x) = \frac{1}{x}$ on $(-1, 1)$

9. Verify the Mean Value theorem for $f(x) = (x-1)(x-2)(x-3)$ in the interval $(0, 4)$

10.