

Worksheet 14

11/28/2022

1. Use Rolle's theorem to show that the equation $x^3 + x^2 + 3x + 1 = 0$ has only one real root.

2. Use Rolle's theorem to show that the equation $x - \frac{1}{x^2} = 1$ has only one real root.

3. Use Mean Value Theorem to show that $\sqrt[3]{x+1} < 1 + \frac{x}{3}$ for any $x > 0$.

4. Differentiate $e^{x+\frac{1}{x}} \ln\left(\frac{1}{x+1}\right)$