

3. Determine the 3rd degree Taylor approximation to $f(x) = \ln(x^2)$ around $a = 1$ and then determine the infinite degree Taylor Polynomial for $f(x) = \ln(x^2)$. What is the interval of convergence of this infinite polynomial?

4. Determine the 3rd degree Taylor approximation to $f(x) = (1 + x)^{2/3}$ around $a = 1$. What is the maximum error of this polynomial within the interval $[0, 2]$?