

Q1. Find the Maclaurin's Polynomial of $\ln(2x+1)$.

Q4. Write the general term of the sequence $\left\{ \sum_{k=1}^n 5(3)^{4-k} \right\}_{n=1}^{\infty}$ in closed form and then evaluate its limit.

Q2. If we want to approximate $\ln(\sin 91^{\circ})$ by using Taylor Series of a function $f(x)$ about $x = a$, then (fill in the blanks)

$$f(x) = \underline{\hspace{2cm}} \quad \text{and } a = \underline{\hspace{2cm}}$$

Q3. Evaluate: $\lim_{n \rightarrow \infty} \frac{\ln(5n^2+1)}{3n^2}$.

Q5. Check if the sequence $\left\{ \frac{5^n}{2^{(n^2)}} \right\}_{n=1}^{\infty}$ is strictly increasing or decreasing.