

8'.1 HW – Series Practice

1. Let f be the function defined by $f(x) = \frac{1}{1-2x}$.

A) Write the first four terms and the general term of the Taylor series expansion of $f(x)$ about $x = 0$.

B) What is the interval of convergence for the series found in part A? Show your work.

C) Use the first four terms of the series found in part A to approximate $f\left(-\frac{1}{4}\right)$.

AP Calculus BC

2. Find the radius of convergence for $\sum_{n=0}^{\infty} \frac{(2x-5)^n}{n!}$.

2. Find the interval of convergence for $\sum_{n=0}^{\infty} \frac{(x^3-2)^{2n}}{4^n}$.

3. Determine if the series $\sum_{n=1}^{\infty} \frac{1}{\sqrt{3n+5}}$ diverges or converges. Show the work that leads to your conclusion.