방과후 퀴즈 11.8.-11.10.

6문제, 15분

2025.12.2.화

1. Find the radius of convergence and interval of convergence of the power series.

$$\sum_{n=1}^{\infty} \frac{(2x-1)^n}{5^n\sqrt{n}}$$

2. Find the radius of convergence and interval of convergence of the power series.

$$\sum_{n=1}^{\infty} \frac{(-1)^n 4^n}{\sqrt{n}} x^n$$

3. Express the function as the sum of a power series by first using partial fractions. Find the interval of convergence.

$$f(x) = \frac{2x-4}{x^2-4x+3}$$

4. Use differentiation to find a power series representation for

$$f(x) = \frac{1}{(1+x)^2}$$

What is the radius of convergence?

5. Find the Taylor series for $f(x) = x^5 + 2x^3 + x$ centered at $a = 2$.

6. Evaluate the indefinite integral as an infinite series.

$$\int \frac{\cos x - 1}{x} dx$$