

1. Find the first five terms of the power series representing each function, and find the radius of convergence

a) $f(x) = \frac{1}{1 + 3x}$

b) $g(x) = \frac{x}{(1 - x)(1 - 2x)}$
(hint: use partial fractions)

2. Find the radius of convergence of the following power series:

$$\sum_{n=1}^{\infty} \frac{n!x^n}{n^n}$$

Answer: _____

3. True or False?

Suppose that the interval of convergence of $\sum_{n=1}^{\infty} c_n x^n$ is $[-4, 2)$.

a) $\sum_{n=1}^{\infty} c_n$ converges

Answer: _____

b) $\sum_{n=1}^{\infty} (-c_n 3^n)$ converges

Answer: _____