

Directions: Show all work on a separate sheet of paper for full credit.

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

$$(a) \sum_{n=1}^{\infty} \frac{(-1)^n x^n}{\sqrt[3]{n}}$$

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

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

$$(d) \sum_{n=1}^{\infty} n^n x^n$$

$$(e) \sum_{n=1}^{\infty} 2^n n^2 x^n$$

$$(f) \sum_{n=1}^{\infty} \frac{(-1)^{n-1}}{n5^n} x^n$$

$$(g) \sum_{n=0}^{\infty} \frac{(x-2)^n}{n^2+1}$$

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