

PRINT your name:

1. The power series $\sum_{n=0}^{\infty} \frac{(x/2)^{2n}}{n^2+1} = 1 + \frac{x^2}{4 \cdot 2} + \frac{x^4}{16 \cdot 5} + \dots$ has a radius of convergence equal to 2. Find its interval of convergence. Fully justify your answer.

2. Does the infinite series $\sum_{n=0}^{\infty} \frac{3n^2-1}{n^3-n+3}$ converge or diverge? Fully justify your answer.