

Name:

1. (3pts) Determine (and justify) whether the series is convergent or divergent.

$$\sum_{n=1}^{\infty} \frac{\sin n \cos n}{n^2}$$

2. (3pts) Determine (and justify) whether the series is convergent or divergent.

$$\sum_{n=1}^{\infty} \left(-\frac{1}{3}\right)^n \left(\frac{n}{n+1}\right)^n$$

3. (4pts) What's the interval of convergence of

$$\sum_{n=1}^{\infty} \frac{2\pi(x+4)^n}{n^{1/3}}$$