

## MATH 104 TUTORIAL 12

1. Determine if the alternating series converges or diverges.

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

$$\sum_{n=1}^{\infty} (-1)^{n+1} \frac{n^2 + 5}{n^2 + 4}$$

2. Which of the series converge absolutely, which converge, and which diverge?

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

$$\sum_{n=1}^{\infty} (-1)^{n+1} \frac{3 + n}{5 + n}$$

$$\sum_{n=1}^{\infty} (-1)^n n^2 (2/3)^n$$

3. Find the series' radius and interval of convergence. For what values of x does the series converge (a) absolutely (b) conditionally?

$$\sum_{n=1}^{\infty} \frac{(3x - 2)^n}{n}$$

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

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

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