

Math 3100 Quiz 9

Name _____

1. (6 points) For each of the following series state whether it converges absolutely, converges conditionally, or diverges. Justify your answers.

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

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

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

2. (4 points) For which values of x for which the following series converges

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

3. (Bonus points) Determine, with justification, whether the series

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

converges absolutely, converges conditionally, or diverges.