

Quiz 5

1. Find the interval and radius of convergence of the given power series. (7 pts.)

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

2. Determine if the given alternating series converges absolutely, converges conditionally, or diverges. (7 pts.)

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

3. Consider the following sequence.

(6 pts.)

$$a_n = \frac{(-1)^n}{2n+1}; n \geq 2$$

- (a) Write out the first three terms of the sequence.
- (b) Does the sequence $\{a_n\}_{n \geq 2}$ converge or diverge? Give a reason for your answer.
- (c) Does the series $\sum_{n=2}^{\infty} a_n$ converge or diverge? Justify your answer fully using one of the convergence tests from class.