

Name (PLEASE PRINT) : _____

Instructions: To have your quiz graded, your work must be neat and legible. You may work with other students in the class on this homework quiz. Show your work on each question.

1. (6 pts) State whether the following series are absolutely convergent, conditionally convergent, or divergent. Justify your answer by listing the test used and showing the test results.

i.

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

ii.

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

iii.

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

2. (2 pts) Write out the first 4 terms in the power series given below. Then find the convergence set for the power series and the radius of convergence.

$$\sum_{n=0}^{+\infty} \frac{(-3)^n x^n}{\sqrt{n+1}}$$

3. (2 pts) Write out the first 4 terms in the power series given below. Then find the convergence set for the power series and the radius of convergence.

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