

**Quiz 6 — 10/12/17**

Name: \_\_\_\_\_ Section and/or TA: \_\_\_\_\_

Answer all questions in a clear and concise manner. Unsupported answers will receive *no credit*.

1. (1 point) By the ratio test, the series

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

- A. converges absolutely
- B. converges conditionally
- C. diverges
- D. the ratio test is inconclusive

2. (1 point) The power series

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

converges absolutely on the interval

- A.  $[-3, 3)$
- B.  $(-2, 4]$
- C.  $(-4, 2)$
- D.  $[-4, 2)$

3. (3 points) Determine whether the series

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

converges absolutely, converges conditionally, or diverges. Justify your answer using a convergence test.