Miniquiz/Homework - MAC 2312 **NAME:** _____

Due Tuesday, Nov. 26, 2019 .

1. (2 pts) State the limit comparison test.

2. (3 pts) True or False. No justification needed. Just circle the answer. (1 pt each)

(a) If $\lim_{k\to+\infty} a_k = 5$ then the series $\sum_{k=1}^{\infty} a_k$ is convergent to 5. **True** **False**

(b) If $\sum_{k=1}^{\infty} a_k = 5$ then $\lim_{k\to+\infty} a_k = 0$. **True** **False**

(c) If $a_k \leq k^{1/5}$ for all $k \geq 1$ then $\sum_{k=1}^{\infty} a_k$ is convergent. **True** **False**

3. Decide whether each of the series below are absolutely convergent (AC), conditionally convergent (CC), or divergent (D).

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

(b) $\displaystyle\sum_{n=0}^{+\infty} \frac{(-10)^n}{n!}$

(c) $\frac{1}{1}-\frac{2}{3}+\frac{3}{5}-\frac{4}{7}+\frac{5}{9}-\frac{6}{11}+...$

(d) $\frac{1}{2}-\frac{1}{5}-\frac{1}{10}+\frac{1}{17}-\frac{1}{26}-\frac{1}{37}+...$