7. [18 points] Determine if the following series converge absolutely, converge conditionally, or diverge. Fully justify your answer including using proper notation and showing mechanics of any tests you use.

a. [8 points] $\displaystyle\sum_{n=1}^{\infty} \frac{\sin(4n)}{4^n}$

Circle one: **Converges Absolutely** **Converges Conditionally** **Diverges**

7. (continued) Here is a reproduction of the instructions for this problem:
Determine if the following series converge absolutely, converge conditionally, or diverge. Fully justify your answer including using proper notation and showing mechanics of any tests you use.

b. [10 points] $\displaystyle\sum_{n=3}^{\infty} \frac{(-1)^n}{n \ln(n)}$

Circle one: **Converges Absolutely** **Converges Conditionally** **Diverges**