

2. [12 points] In this problem **you must give full evidence supporting your answer, showing all your work and indicating any theorems about series you use.**

a. [7 points] Show that the following series **converges**. Does it converge conditionally or absolutely? Justify.

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

b. [5 points] Determine whether the following series converges or diverges:

$$\sum_{n=2}^{\infty} \frac{1}{n \ln n}$$