

3. [9 points] In this problem you must give full evidence supporting your answer, showing all your work and indicating any theorems or tests about series you use. (Remark: You **cannot** use any results about convergence from the team homework without justification.)
- a. [4 points] Determine whether the series below converges or diverges, and circle your answer clearly. Justify your answer as described above.

$$\sum_{n=1}^{\infty} \sin\left(\frac{1}{\sqrt{n}}\right)$$

Converges

Diverges

- b. [5 points] Determine if the following infinite series converges absolutely, converges conditionally, or diverges, and circle your answer clearly. Justify your answer as described above.

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

Converges Absolutely

Converges Conditionally

Diverges