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MATH 107 Quiz 5  
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1. Does the sequence  $\{a_n\}$  defined by

$$a_n = \frac{\ln n}{\ln 2n}$$

converge or diverge? Why? If it converges, find its limit.

2. Does the following series converge or diverge? Why?

$$\sum_{n=0}^{\infty} \frac{2^n}{n+1}$$

3. Does the following series converge or diverge? Why?

$$\sum_{n=0}^{\infty} \frac{e^n}{1+e^{2n}}$$