Math 102 Sections 19 & 22 Quiz I (102)

Name: _____ ID _____ List: _____

1. Convergent or Divergent? If it is convergent, find the limit: $a_n = n \sin\left(\frac{1}{n}\right)$.

2. If the series is convergent, find its sum; otherwise, show that it is divergent.

   (i) $\sum_{i=1}^{n} \frac{1+e^n}{3^{n-1}}$

   (ii) $\sum_{i=1}^{\infty} \frac{1+\cos^2 n}{n}$

3. Use the Integral Test to determine whether the series is convergent or divergent: $\sum_{i=3}^{\infty} \frac{n^2}{e^n}$.

   Show all details.