NAME:

Show ALL your work CAREFULLY.

(a) Find the limit of the following sequence or explain why it does not exist.

\[ a_n = n(\cos(1/n) - 1) \quad n = 1, 2, \ldots \]

(b) Determine whether the following infinite series converges or diverges. If it converges, evaluate the infinite series.

\[ \sum_{n=3}^{\infty} 2 \left( \frac{e}{\pi} \right)^n \]