NAME:

Show ALL your work CAREFULLY.

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

\[ a_n = n(1 - \cos(1/n)) \]

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

\[ \sum_{n=3}^{\infty} 3 \left( \frac{\pi}{4} \right)^n \]