6. [12 points] Determine whether the following series converge or diverge.
Fully justify your answer. Show all work and indicate any convergence tests used.

a. [6 points] $\displaystyle\sum_{n=1}^{\infty} \frac{n^2 + n\cos(n)}{\sqrt{n^8 - n + 1}}$ **Converges**   **Diverges**

Justification:

b. [6 points] $\displaystyle\sum_{n=0}^{\infty} \frac{\sin(n)}{e^n}$ **Converges**   **Diverges**

Justification: