

4. [8 points] Determine whether the following series converge or diverge.  
Fully justify your answer. Show all work and include any convergence tests used.

a. [4 points]  $\sum_{n=1}^{\infty} \frac{1}{\sin\left(\frac{1}{n}\right)}$

*Circle one:*

**Converges**

**Diverges**

**Justification:**

b. [4 points]  $\sum_{n=0}^{\infty} \frac{2^n}{n^2 + 3^n}$

*Circle one:*

**Converges**

**Diverges**

**Justification:**