1. Let $a_k = \frac{e^k}{k}$.

   (a) Find $S_3$ for $\sum_{k=1}^{\infty} a_k$. You do not have to simplify your answer.

   (b) Does $\sum_{k=1}^{\infty} a_k$ converge or diverge? Justify your answer.

2. Determine if the series is convergent or divergent. If convergent, find the sum. Justify your answer.

   $$\sum_{k=0}^{\infty} \frac{3^{k+1}}{4^k}$$