3. [12 points] Indicate whether you think each of the following series converges, diverges, or whether there is not enough information to determine convergence. You do not need to show your work for this page.

a. [3 points] Suppose $\sum_{n=1}^{\infty}(a_n + b_n)$ converges. Determine the convergence of $\sum_{n=1}^{\infty} a_n$.

CONVERGES DIVERGES **CANNOT TELL**

b. [3 points] Suppose $\sum_{n=1}^{\infty} a_n$ converges. Determine the convergence of $\sum_{n=1}^{\infty}(a_n + 4)$.

CONVERGES **DIVERGES** CANNOT TELL

c. [3 points] Suppose $\lim_{n\to\infty} \left|\frac{a_{n+1}}{a_n}\right| = \frac{1}{2}$. Determine the convergence of $\sum_{n=1}^{\infty} \frac{a_n}{n}$.

CONVERGES DIVERGES CANNOT TELL

d. [3 points] Determine the convergence of $\sum_{n=1}^{\infty} \frac{\cos(n\pi)}{n}$.

CONVERGES DIVERGES CANNOT TELL