1. Find the center of mass of a uniform lamina of density \( \rho \), which is bounded by \( x = 0, \ x = 1, \ y = 0 \) and \( y = e^x \).

2. Determine if the sequence \( \{a_n\} \), where \( a_n = \frac{(-1)^n n^3}{n^3 + 2n^2 + 1} \), converges. If so, find the limit.

3. Determine if the sequence \( \{b_n\} \), where \( b_n = \frac{\sin(2n)}{1 + \sqrt{n}} \), converges. If so, find the limit.

4. Determine if the series \( \sum_{n=1}^{\infty} \frac{2}{n^3 + 4n + 3} \) converges. If so, find the sum.

5. Determine if the series \( \sum_{n=1}^{\infty} [(0.8)^{n-1} - (0.3)^n] \) converges. If so, find the sum.

6. Find the values of \( x \) for which \( \sum_{n=0}^{\infty} \frac{(x + 3)^n}{2^n} \) converges. For those \( x \), find the sum.