

8. [16 points] For each of the following series, state a convergence test that you could use to determine if the series converges or not and indicate why you chose that test. Then carefully apply the test to determine if the series converges or not. Mathematical precision is important in this problem.

a. [8 points] $\sum_{n=2} \frac{\sqrt{n+3}}{n^2-1}$

b. [8 points] $\sum \frac{(n+1)!}{2e^{3n}}$