

Homework for sections 9.3 and 9.4

Use the indicated series test in each problem to determine if the series converges or diverges. Show all work and provide upper bounds when appropriate. State a final conclusion in words.

1. Integral test: $\sum_{n=0}^{\infty} \frac{10}{n^2 + 7}$

2. Comparison test: $\sum_{k=1}^{\infty} \frac{1}{\sqrt{k^2(k+4)}}$

3. Ratio test: $-\frac{1^2}{3!} + \frac{5 \cdot 2^2}{5!} - \frac{25 \cdot 6^2}{7!} + \frac{125 \cdot 24^2}{9!} - \frac{625 \cdot 120^2}{11!} + \dots$