SECTION 5.4: COMPARISON TESTS

1. The comparison tests *depend* on knowledge of geometric series and p-series. For each, (i) give the form of the series, (ii) state the conditions under which it converges and diverges, (iii) give examples of convergent and divergent series of the given type.

   (a) geometric series

   (b) p-series

2. The Comparison Test

3. Use the **comparison test** to determine whether the series converge or diverge.

   (a) $\displaystyle\sum_{n=1}^{\infty} \frac{3^n}{4^n + 2^n}$

(b) $\displaystyle\sum_{n=1}^{\infty} \frac{3}{5n-1}$

4. The Limit Comparison Test

5. Use the **limit comparison test** to determine whether the series converge or diverge.

(a) $\displaystyle\sum_{n=1}^{\infty} \frac{1}{n^2 - \ln(n)}$

(b) $\displaystyle\sum_{n=1}^{\infty} \frac{1}{\ln(n^{10} + n)}$