

1. Consider the series $\sum_{k=2}^{\infty} \frac{3^k}{5^k + 2k}$

(a) Show that the series converges.

(b) Find a value N so that $R_N \leq 10^{-10}$.

(Hint: Compare R_N to a geometric series $\sum_{k=N}^{\infty} r^k$)

(c) Approximate the value of the series accurate within 10^{-10} by using Maple to calculate S_N .

2. Do the following series converge or diverge?

$$(a) \sum_{k=2}^{\infty} \frac{2k}{7k + 18} \quad (b) \sum_{j=5}^{\infty} \frac{j!}{(j + 2)!}$$