

I. Do the following series converge or diverge?

1. $\sum_{k=1}^{\infty} \frac{1}{3^k + 2}$

2. $\sum_{k=2}^{\infty} \frac{1}{k^2}$

Hint: Draw a picture comparing with $\int_1^{\infty} \frac{1}{x^2} dx$.

3. $\sum_{k=1}^{\infty} \frac{1}{k}$

Hint: Draw a picture comparing with $\int_1^{\infty} \frac{1}{x} dx$.

II. For #2, find a value of n so that $R_n < 0.0001$.

Approximate #2 accurate within 0.0001.