

Do the following series converge or diverge?

1.  $\sum_{k=4}^{\infty} \frac{2k^2}{3k^3 - 1}$  (Comparison & Integral tests)

2.  $\sum_{k=1}^{\infty} \frac{\sin(k) + 3}{5k^{17}}$  (Comparison & Integral tests)

3.  $\sum_{n=12}^{\infty} \frac{10^n}{n!}$  (Ratio Test)