

1. Do the following series converge absolutely, converge conditionally, or diverge? For each convergent series, how closely does S_{50} approximate the value of the series?

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

(b) $\sum_{j=0}^{\infty} (-1)^j \frac{3j^3}{6j^3 + 7j}$

$$\sum_{k=1}^{\infty} \frac{\cos(k\pi)}{k}$$

2. Show that the following series converge, and calculate S_{10} , S_{100} , and S_{1000} . What is your guess for the value of the series?

(a) $\sum_{k=0}^{\infty} \frac{1}{k!}$

$$\sum_{k=0}^{\infty} (-1)^k \frac{4}{2k+1}$$