

1. Use the ratio test to decide the convergence or divergence of

(a) $\sum_{k=12}^{\infty} \frac{10^k}{k!}$

(b) $\sum_{n=1}^{\infty} \frac{2^n}{n^{50}}$

2. Use whatever test seems appropriate to determine the convergence or divergence of

(a) $\sum_{m=1}^{\infty} \frac{m}{(1+m^2)^5}$

(b) $\sum_{j=1}^{\infty} \frac{1}{j+e^j}$

(c) $\sum_{n=0}^{\infty} \frac{n^3}{n!}$

(d) $\sum_{k=5}^{\infty} \frac{k^4 + 400k^3}{1000k^4 + k}$