

1. Determine convergence or divergence using any test

a. 
$$\sum_{n=1}^{\infty} \frac{n^3}{n!}$$

b. 
$$\sum_{n=1}^{\infty} \frac{n}{2n+1}$$

c. 
$$\sum_{n=1}^{\infty} 2^{1/n}$$

d. 
$$\sum_{n=1}^{\infty} \frac{\sin n}{n^2}$$

e. 
$$\sum_{n=1}^{\infty} \frac{1}{n+\sqrt{n}}$$

f. 
$$\sum_{n=1}^{\infty} \frac{1}{\sqrt{n^2+1}}$$

g. 
$$\sum_{n=1}^{\infty} \frac{(-1)^n n}{\sqrt{n^2+1}}$$

h. 
$$\sum_{n=1}^{\infty} \frac{2^n + 4^n}{7^n} \quad (\text{Hint: } \sum a_n + b_n = \sum a_n + \sum b_n)$$