

For each series (i) state your conclusion on convergence; (ii) state which test justifies your conclusion; and (iii) demonstrate how you used the test. Please turn in a *second draft*.

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

2.
$$\sum_{k=1}^{\infty} \frac{-1^k}{9^k}$$

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

4.
$$\sum_{k=1}^{\infty} \frac{\sqrt{k}}{k+1}$$

5.
$$\sum_{k=1}^{\infty} \frac{\sqrt{k}}{k-1}$$

6.
$$\sum_{k=1}^{\infty} \frac{n!}{(2n)!}$$