Series Testing: Sections 9.2-9.6

Test the series for convergence or divergence.

- Name the test utilized.
- Support your conclusion.
- If convergent, find the sum whenever possible.

a) $\sum_{n=1}^{\infty} \frac{n^2}{n^2+1}$	b) $\sum_{n=1}^{\infty} \frac{1}{n^2\sqrt{n}}$
c) $\sum_{n=0}^{\infty} \frac{n^2}{3^{n+1}}$	d) $\sum_{n=1}^{\infty} (-1)^{n+1} \frac{3^n}{5^{n+1}}$
e) $\sum_{n=1}^{\infty} \frac{2n}{n^2+1}$	f) $\sum_{n=0}^{\infty} (-1)^n \frac{n!}{(2n+1)!}$
g) $\sum_{n=1}^{\infty} \left(\frac{1}{n} - \frac{1}{n+2}\right)$	h) $4 - 1 + \frac{1}{4} - \frac{1}{16} + \frac{1}{64} - \frac{1}{256} + \ldots$
i) $\sum_{n=1}^{\infty} \frac{(-1)^n}{n+2}$	j) $\sum_{n=1}^{\infty} \frac{(-1)^{2n}}{n}$