Name_____

Practice Determining Convergence of Series

Determine whether the series is convergent or divergent using the test of your choice. Make sure you state the test used and all criteria needed for the determination.

1. $\sum_{n=1}^{\infty} \frac{2n}{n^3+1}$
2. $\sum_{n=1}^{\infty} \frac{(-1)^n \sqrt{n}}{n+1}$
3. $\sum_{n=2}^{\infty} \frac{\cos 3n}{1+1.2^n}$
4. $\sum_{n=1}^{\infty} \frac{2}{n^2+4n+3}$
5. $\sum_{n=1}^{\infty} \frac{5^n}{(n+2)!}$
6. $\sum_{n=1}^{\infty} \frac{n^3+1}{n^5+3}$
7. $\sum_{n=1}^{\infty} \frac{3^n}{4^{n+2}}$
8. $\sum_{n=1}^{\infty} \frac{n!(n+1)!}{(3n)!}$
9. $\sum_{n=1}^{\infty} (-1)^n \cos\left(\frac{1}{n}\right)$
10. $\sum_{n=1}^{\infty} \frac{n+5}{n\sqrt{n+3}}$
11. $\sum_{n=1}^{\infty} n^2 e^{-n^3}$
12. $\sum_{n=1}^{\infty} (-1)^n \frac{n!}{\pi^n}$

Challenge:

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