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

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

5. $\sum_{n=1}^{\infty} \frac{(-3)^{n+1}}{2^{3n}}$

7. $\sum_{n=2}^{\infty} \frac{1}{n\sqrt{\ln n}}$

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

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

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

15. $\sum_{n=0}^{\infty} \frac{n!}{2 \cdot 5 \cdot 8 \cdot \cdots \cdot (3n + 2)}$

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17. $\sum_{n=1}^{\infty} (-1)^n 2^{1/n}$

19. $\sum_{n=1}^{\infty} (-1)^n \frac{\ln n}{\sqrt{n}}$

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

23. $\sum_{n=1}^{\infty} \tan(1/n)$

25. $\sum_{n=1}^{\infty} \frac{n!}{e^{n^2}}$

27. $\sum_{k=1}^{\infty} \frac{k \ln k}{(k + 1)^3}$

29. $\sum_{n=1}^{\infty} \frac{\tan^{-1} n}{n\sqrt{n}}$

31. $\sum_{k=1}^{\infty} \frac{5^k}{3^k + 4^k}$

33. $\sum_{n=1}^{\infty} \frac{\sin(1/n)}{\sqrt{n}}$

Worksheet #24

PRACTICE WITH *ALL* OF THE SERIES TESTS

Directions: Determine whether the given series diverges, converges conditionally or converges absolutely. If it is geometric, compute the sum.
BE SURE TO STATE WHICH TEST(S) YOU USE.

1. $\sum_{n=0}^{\infty}(-1)^n(0.3)^n$
2. $\sum_{n=1}^{\infty} n^{-1/4}$
3. $\sum_{n=2}^{\infty} \frac{n}{(n^3-1)^{3/7}}$
4. $\sum_{n=1}^{\infty} \frac{n!}{e^n}$
5. $\sum_{n=3}^{\infty} \frac{\cos n\pi}{\sqrt{n}}$
6. $\sum_{n=0}^{\infty} \frac{n^2}{n+1}$
7. $\sum_{n=2}^{\infty} \frac{1}{(\ln n)^n}$
8. $\sum_{n=3}^{\infty} \frac{\sin^2 n}{n^{3/2}}$
9. $\sum_{n=3}^{\infty} \frac{n^2-\sqrt{n}}{4-n^2}$
10. $\sum_{n=1}^{\infty} \frac{1}{n\sqrt{n}-n}$
11. $\sum_{n=0}^{\infty}(-1)^n \frac{3^n}{2^{n+2}}$
12. $\sum_{n=1}^{\infty} \frac{12}{n^{0.9999}}$
13. $\sum_{n=1}^{\infty} \frac{n}{e^n}$