

Practice Series Problems – Math 112 – Fall 2001

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

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

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

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

5. $\sum_{n=1}^{\infty} \frac{10n+1}{n(n+1)(n+2)}$

6. $\sum_{n=1}^{\infty} \frac{2^{n+1}}{5^n}$

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

8. $\sum_{n=1}^{\infty} (-1)^n \ln\left(\frac{1}{n}\right)$

9. $\sum_{n=1}^{\infty} \ln\left(\frac{1}{n}\right)$

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

11. $\sum_{n=1}^{\infty} \left(\frac{1}{\sqrt{n-1}} - \frac{1}{\sqrt{n+1}}\right)$

$$12. \sum_{n=1}^{\infty} \frac{1}{n\sqrt{n}}$$

$$13. \sum_{n=1}^{\infty} (n+3)!n!3^n$$

$$14. \sum_{n=1}^{\infty} \cos(n\pi)$$

$$15. \sum_{n=1}^{\infty} (-1)^n \frac{1}{\sqrt{n+10}}$$

$$16. \sum_{n=1}^{\infty} \frac{1}{4^n}$$

$$17. \sum_{n=1}^{\infty} (-1)^n \frac{\sin^2 n}{n^{\frac{9}{2}}}$$

$$18. \sum_{n=1}^{\infty} \frac{2}{n^2+n}$$

$$19. \sum_{n=1}^{\infty} \frac{1}{(n+3)^2}$$

$$20. \sum_{n=1}^{\infty} (-1)^n \frac{n^4 3^n}{n!}$$

$$21. \sum_{n=1}^{\infty} \frac{\cos(n\pi)}{5^n}$$

$$22. \sum_{n=1}^{\infty} \int_n^{n+1} \frac{1}{x^3} dx$$