

Test	What does it look Like?	Converge & Diverge
Geometric		Converge: Diverge:
Divergent		Converge: Diverge:
Harmonic/Telescoping		Converge: Diverge:
Integral		Converge: Diverge:
P-Series		Converge: Diverge:
Comparison		Converge: Diverge:
Limit Comparison		Converge: Diverge:
Alternating		Converge: Diverge:
Ratio		Converge: Diverge:
Root		Converge: Diverge:

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

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

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

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

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

Answers:

1. D:ratio 2. C:comparison 3. C:integral 4. D:divergence 5. D: limit comparison

6. $\sum_{n=1}^{\infty} \frac{1}{\sqrt[4]{n^3}}$

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

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

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

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

11. $\sum_{n=0}^{\infty} \left(\frac{2}{3}\right)^n$

Answers

6. D:p 7. D:limit comparison 8. D:ratio 9. C:alternating 10. C:ratio 11. C:geometric

$$12. \sum_{n=0}^{\infty} \frac{2^n}{3^n n!}$$

$$13. \sum_{n=0}^{\infty} \frac{1}{n^2 + 1}$$

$$14. \sum_{n=1}^{\infty} \frac{5n-3}{n^2-2n+5}$$

$$15. \sum_{n=1}^{\infty} \frac{n}{n^2 + 1}$$

$$16. \sum_{n=1}^{\infty} \frac{n}{\sqrt{n^2 + 1}}$$

$$17. \sum_{n=1}^{\infty} \frac{n2^n}{4n^3 + 1}$$

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

Answers:

12. C:comparison 13. C:comparison 14. D:limit comparison
15. D: limit comparison 16. D:integral 17. D:ratio 18. C:root

