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

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

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

6. $\sum_{n=0}^{\infty} \frac{4^n}{5^n+3}$

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

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

9. $\sum_{n=0}^{\infty} \frac{1}{n!}$

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

11. $\sum_{n=0}^{\infty} e^{-n^2}$

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

What to Compare

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

14. $\sum_{n=1}^{\infty} \frac{5}{4^n+1}$

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

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

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

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

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

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

21. $\sum_{n=1}^{\infty} \frac{n^{k-1}}{n^k+1}, \quad k > 2$

22. $\sum_{n=1}^{\infty} \sin\frac{1}{n}$

Determining Convergence or Divergence **In Exercises 27–34, test for convergence or divergence, using each test at least once. Identify which test was used.**

(a) *n*th-Term Test **(b) Geometric Series Test**
(c) *p*-Series Test **(d) Telescoping Series Test**
(e) Integral Test **(f) Direct Comparison Test**
(g) Limit Comparison Test

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

28. $\sum_{n=0}^{\infty} 5\left(-\frac{4}{3}\right)^n$

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

30. $\sum_{n=2}^{\infty} \frac{1}{n^3-8}$

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

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

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

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