作業 11.4

3–32 Determine whether the series converges or diverges.

3. $\sum_{n=1}^{\infty} \frac{n}{2n^3+1}$ **7.** $\sum_{n=1}^{\infty} \frac{9^n}{3+10^n}$ **9.** $\sum_{n=1}^{\infty} \frac{\cos^2 n}{n^2+1}$ **11.** $\sum_{n=1}^{\infty} \frac{n-1}{n4^n}$

13. $\sum_{n=1}^{\infty} \frac{\arctan n}{n^{1.2}}$ **17.** $\sum_{n=1}^{\infty} \frac{1}{\sqrt{n^2+1}}$ **27.** $\sum_{n=1}^{\infty} \left(1+\frac{1}{n}\right)^2 e^{-n}$ **29.** $\sum_{n=1}^{\infty} \frac{1}{n!}$

33–36 Use the sum of the first 10 terms to approximate the sum of the series. Estimate the error.

33. $\sum_{n=1}^{\infty} \frac{1}{\sqrt{n^4+1}}$

11.4 答案

EXERCISES 11.4 ■ PAGE 709

1. (a) Nothing (b) C **3.** C **5.** D **7.** C **9.** C
11. C **13.** C **15.** C **17.** D **19.** D **21.** C
23. C **25.** D **27.** C **29.** C **31.** D
33. 1.249, error < 0.1 **35.** 0.76352, error < 0.001
45. Yes

11.5 題目

2–20 Test the series for convergence or divergence.

5. $\sum_{n=1}^{\infty} \frac{(-1)^{n-1}}{2n+1}$ **7.** $\sum_{n=1}^{\infty} (-1)^n \frac{3n-1}{2n+1}$ **11.** $\sum_{n=1}^{\infty} (-1)^{n+1} \frac{n^2}{n^3+4}$ **13.** $\sum_{n=2}^{\infty} (-1)^n \frac{n}{\ln n}$

15. $\sum_{n=1}^{\infty} \frac{\cos n\pi}{n^{3/4}}$ **19.** $\sum_{n=1}^{\infty} (-1)^n \frac{n^n}{n!}$

21–22 Calculate the first 10 partial sums of the series and graph both the sequence of terms and the sequence of partial sums on the same screen. Estimate the error in using the 10th partial sum to approximate the total sum.

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

23–26 Show that the series is convergent. How many terms of the series do we need to add in order to find the sum to the indicated accuracy?

23. $\sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n^6}$ $(|\text{error}| < 0.00005)$ **25.** $\sum_{n=0}^{\infty} \frac{(-1)^n}{10^n n!}$ $(|\text{error}| < 0.000005)$

27–30 Approximate the sum of the series correct to four decimal places.

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

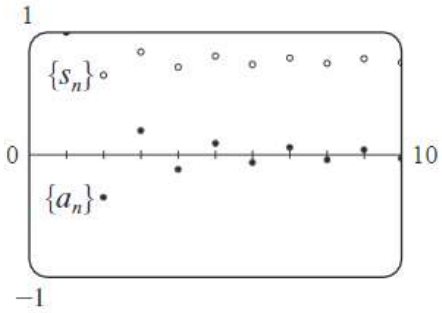
31. Is the 50th partial sum s_{50} of the alternating series $\sum_{n=1}^{\infty} (-1)^{n-1}/n$ an overestimate or an underestimate of the total sum? Explain.

11.5 答案

EXERCISES 11.5 ■ PAGE 713

5. C **7.** D **11.** C **13.** D **15.** C **19.** D

21. 1.0000, 0.6464, 0.8389, 0.7139, 0.8033, 0.7353, 0.7893, 0.7451, 0.7821, 0.7505; error < 0.0275



23. 5 **25.** 4 **29.** 0.0676 **31.** An underestimate