

P. 759: 1,3,5,6,11,12,13,14,15,18,19,20,23,24,27,35,40,42.

P. 733: 5,14,16,26,30.

### Answers to even numbered problems

P. 759:

- 6. The sequence converges and the limit is 0.
- 12. Diverges by the Limit Comparison Test.
- 14. Converges by the Alternating Series Test.
- 18. Converges by the Root Test.
- 20. Diverges by the Ratio Test.
- 24. Absolutely convergent.
- 40.  $R = 5$ . The interval of convergence is  $[-5, 5]$ .
- 42.  $R = \infty$ . The interval of convergence is  $(-\infty, \infty)$ .

P. 733:

$$14. \text{ (a) } \ln(1+x) = \sum_{n=0}^{\infty} \frac{(-1)^n x^{n+1}}{n+1}. \quad \text{(b) } x \ln(1+x) = \sum_{n=0}^{\infty} \frac{(-1)^n x^{n+2}}{n+1}.$$

$$\text{(c) } \ln(1+x^2) = \sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+2}}{n+1}.$$

$$16. \sum_{n=0}^{\infty} 2^n (n+1) x^{n+2}. \quad R = \frac{1}{2}.$$

$$26. \sum_{n=0}^{\infty} (-1)^n \frac{x^{4n+3}}{(2n+1)(4n+3)} + C. \quad R = 1.$$

$$30. \int_0^{0.3} \frac{x^2}{1+x^4} dx = \sum_{n=0}^{\infty} (-1)^n \frac{3^{4n+3}}{(4n+3)10^{4n+3}}.$$

$$\int_0^{0.3} \frac{x^2}{1+x^4} dx \approx \frac{3^3}{3 \cdot 10^3} - \frac{3^7}{7 \cdot 10^7}, \text{ to 6 decimal places.}$$