

Chapter 15 answers

15.1

1. 2, 3, 4, 5 3. -1, 2, 5, 8 5. $-\frac{1}{3}, \frac{1}{6}, -\frac{1}{9}, \frac{1}{12}$ 7. 0, 2, 0, 2 9. 2, 5, 17, 65
11. $a_n = n + 1$ 13. $a_n = n^2$ 15. $a_n = 2n + 1$ 17. $a_n = 2^n$ 19. $a_n = \sqrt{n} + 1$
21. $a_1 = a_2 = 1, a_{n+1} = a_{n-1} + a_n$ 23. $a_n = 1 + \frac{1}{n}$ 25. $a_n = \frac{(-1)^n}{2n}$ 27. 24
29. $\frac{1}{20}$ 31. 28 33. 2 35. n 37. 2 39. $2n+1$ 41. 45
43. 35 45. 0.33333 47. 90 49. 31 51. 14 53. 2.718
55. 238 57. $x + x^2 + x^3$ 59. $2x^2 + 4x^4 + 6x^6 + 8x^8$

15.2

1. 2 3. -5 5. 4 7. -5 9. $\frac{1}{4}$ 11. $a_n = 6 + 2n$
13. $a_n = 3 - 3n$ 15. $a_n = x + 2nx$ 17. $a_n = 4n$ 19. $a_n = 3n - 5$
21. $a_n = -5 + 2n$ 23. $a_n = 4 + 2n$ 25. $a_n = 103 - 3n$ 27. $a_n = 265 - 15n$
29. $a_n = -3 - 10n$ 31. 10,100 33. 126,750 35. 520 37. 218,625 39. 2,725
41. 100 43. 265 45. 123,675 47. 4000 49. -13,150

15.3

1. 3 3. -5 5. 3 7. -1.1 9. -3/4 11. $a_n = 4 \cdot 2^{n-1}$
13. $a_n = 3^n$ 15. $a_n = \left(-\frac{1}{2}\right)^{n-1}$ 17. $a_n = 2 \cdot 5^{n-1}$ 19. $a_n = (-2)^{n-1}$ 21. $a_n = \left(\frac{1}{3}\right)^{n-1}$
23. $a_n = 3 \cdot \left(-\frac{1}{2}\right)^{n-1}$ 25. $a_n = 6 \cdot 3^{n-1}$ 27. $a_n = 4 \cdot (-4)^{n-1}$ 29. $a_n = 2 \cdot \left(\frac{4}{3}\right)^{n-1}$
31. 511 33. 43 35. 29,921.31 37. 6.4 39. 15/4 41. 2,092.6
43. 10 45. 10/3 47. 32 49. 9/4

15.4

1. 6 3. 210 5. 28 7. 635,376 9. 1 11. $x^3 + 3x^2y + 3xy^2 + y^3$
13. $x^4 + 4x^3y + 6x^2y^2 + 4xy^3 + y^4$ 15. $a^5 + 5a^4b + 10a^3b^2 + 10a^2b^3 + 5ab^4 + b^5$
17. $a^6 + 6a^5b + 15a^4b^2 + 20a^3b^3 + 15a^2b^4 + 6ab^5 + b^6$
19. $x^7 + 7x^6y + 21x^5y^2 + 35x^4y^3 + 35x^3y^4 + 21x^2y^5 + 7xy^6 + y^7$
21. $x^3 - 9x^2 + 27x - 27$ 23. $x^4 + 16x^3 + 96x^2 + 256x + 256$
25. $32 - 80a + 80a^2 - 40a^3 + 10a^4 - a^5$ 27. $81x^4 - 108x^3 + 54x^2 - 12x + 1$
29. $8a^3 + 12a^2 + 6a + 1$ 31. $32x^5 + 240x^4y + 720x^3y^2 + 1080x^2y^3 + 810xy^4 + 243y^5$
33. $x^5 - 20x^4y + 160x^3y^2 - 640x^2y^3 + 1280xy^4 + 1024y^5$
35. $a^6 + 24a^5b + 240a^4b^2 + 1280a^3b^3 + 3840a^2b^4 + 6144ab^5 + 4096b^6$
37. $\frac{1}{x^5} + \frac{5}{x^4y} + \frac{10}{x^3y^2} + \frac{10}{x^2y^3} + \frac{5}{xy^4} + \frac{1}{y^5}$
39. $823,543a^7 - \frac{823,543a^6}{x} + \frac{352,947a^5}{x^2} - \frac{84,035a^4}{x^3} + \frac{12,005a^3}{x^4} - \frac{1,029a^2}{x^5} + \frac{49a}{x^6} - \frac{1}{x^7}$