In Exercises 47–52, use the *table* feature of a graphing utility to find the first 10 terms of the sequence. (Assume *n* begins with 1.)

47. $a_n = 4n - 5$

48. $a_n = 17 + 3n$

49. $a_n = 20 - \frac{3}{4}n$

50. $a_n = \frac{4}{5}n + 12$

51. $a_n = 1.5 + 0.005n$

52. $a_n = -12.4n + 9$

In Exercises 53–58, find the indicated *n*th partial sum of the arithmetic sequence.

53. $8, 20, 32, 44, \ldots, \quad n = 10$

54. $-6, -2, 2, 6, \ldots, \quad n = 50$

55. $0.5, 1.3, 2.1, 2.9, \ldots, \quad n = 10$

56. $4.2, 3.7, 3.2, 2.7, \ldots, \quad n = 12$

57. $a_1 = 100, \ a_{25} = 220, \quad n = 25$

58. $a_1 = 15, \ a_{100} = 307, \quad n = 100$

59. Find the sum of the first 100 positive odd integers.

60. Find the sum of the integers from -10 to 50.

In Exercises 61–68, find the partial sum without using a graphing utility.

61. $\sum_{n=1}^{50} n$

62. $\sum_{n=1}^{100} 2n$

63. $\sum_{n=1}^{100} 5n$

64. $\sum_{n=51}^{100} 7n$

65. $\sum_{n=11}^{30} n - \sum_{n=1}^{10} n$

66. $\sum_{n=51}^{100} n - \sum_{n=1}^{50} n$

67. $\sum_{n=1}^{500} (n + 8)$

68. $\sum_{n=1}^{250} (1000 - n)$

In Exercises 69–74, use a graphing utility to find the partial sum.

69. $\sum_{n=1}^{20} (2n + 5)$

70. $\sum_{n=0}^{50} (100 - 5n)$

71. $\sum_{n=1}^{100} \frac{n + 4}{2}$

72. $\sum_{n=0}^{100} \frac{8 - 3n}{16}$

73. $\sum_{i=1}^{60} \left(250 - \frac{8}{3}i\right)$

74. $\sum_{j=1}^{200} (4.5 + 0.025j)$

Job Offer **In Exercises 75 and 76, consider a job offer with the given starting salary and guaranteed salary increase for the first 5 years of employment.**

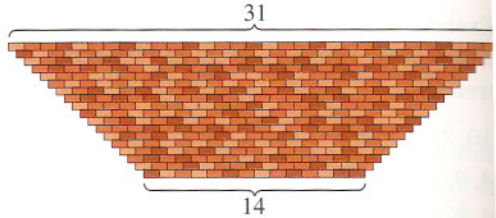
(a) Determine the salary during the sixth year of employment.

(b) Determine the total compensation from company through 6 full years of employmen

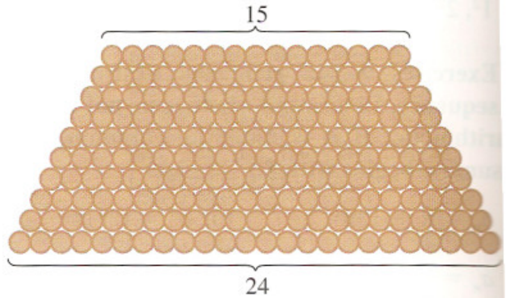
(c) Verify your results in parts (a) and (b) numeri

	Starting Salary	*Annual Raise*
75.	\$32,500	\$1500
76.	\$36,800	\$1750

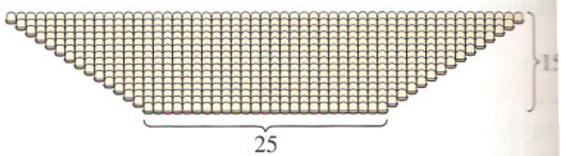
77. ***Brick Pattern*** A brick patio has the approxi shape of a trapezoid, as shown in the figure. patio has 18 rows of bricks. The first row 14 bricks and the 18th row has 31 bricks. How n bricks are in the patio?



78. ***Number of Logs*** Logs are stacked in a pile shown in the figure. The top row has 15 logs and bottom row has 24 logs. How many logs are in stack?



79. ***Seating Capacity*** Each row in a small auditori has two more seats than the preceding row, as sho in the figure. Find the seating capacity of auditorium if the front row seats 25 people and th are 15 rows of seats.



In Exercises 45–54, find the sum. Use a graphing utility to verify your result.

45. $\sum_{n=1}^{9} 2^{n-1}$

46. $\sum_{n=1}^{9} (-2)^{n-1}$

47. $\sum_{i=1}^{7} 64\left(-\frac{1}{2}\right)^{i-1}$

48. $\sum_{i=1}^{6} 32\left(\frac{1}{4}\right)^{i-1}$

49. $\sum_{n=0}^{20} 3\left(\frac{3}{2}\right)^{n}$

50. $\sum_{n=0}^{15} 2\left(\frac{4}{3}\right)^{n}$

51. $\sum_{i=1}^{10} 8\left(-\frac{1}{4}\right)^{i-1}$

52. $\sum_{i=1}^{10} 5\left(-\frac{1}{3}\right)^{i-1}$

53. $\sum_{n=0}^{5} 300(1.06)^{n}$

54. $\sum_{n=0}^{6} 500(1.04)^{n}$

In Exercises 55–58, use summation notation to write the sum.

55. $5 + 15 + 45 + \cdots + 3645$

56. $7 + 14 + 28 + \cdots + 896$

57. $2 - \frac{1}{2} + \frac{1}{8} - \cdots + \frac{1}{2048}$

58. $15 - 3 + \frac{3}{5} - \cdots - \frac{3}{625}$

In Exercises 59–72, find the sum of the infinite geometric series, if possible. If not possible, explain why.

59. $\sum_{n=0}^{\infty} \left(\frac{1}{2}\right)^{n}$

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

61. $\sum_{n=0}^{\infty} \left(-\frac{1}{2}\right)^{n}$

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

63. $\sum_{n=1}^{\infty} 2\left(\frac{7}{3}\right)^{n-1}$

64. $\sum_{n=1}^{\infty} \frac{1}{2}(4)^{n}$

65. $\sum_{n=0}^{\infty} (0.4)^{n}$

66. $\sum_{n=0}^{\infty} 4(0.5)^{n}$

67. $\sum_{n=0}^{\infty} -3(0.9)^{n}$

68. $\sum_{n=0}^{\infty} -10(0.2)^{n}$

69. $8 + 6 + \frac{9}{2} + \frac{27}{8} + \cdots$

70. $9 + 6 + 4 + \frac{8}{3} + \cdots$

71. $3 - 1 + \frac{1}{3} - \frac{1}{9} + \cdots$

72. $-6 + 5 - \frac{25}{6} + \frac{125}{36} - \cdots$

In Exercises 73–76, find the rational number repre-

77. ***Compound Interest*** A principal of \$1000 is invested at 3% interest. Find the amount after 10 years if the interest is compounded (a) annually, (b) semiannually, (c) quarterly, (d) monthly, and (e) daily.

78. ***Compound Interest*** A principal of \$2500 is invested at 4% interest. Find the amount after 20 years if the interest is compounded (a) annually, (b) semiannually, (c) quarterly, (d) monthly, and (e) daily.

79. ***Annuity*** A deposit of \$100 is made at the beginning of each month in an account that pays 6% interest, compounded monthly. The balance A in the account at the end of 5 years is given by

$$A = 100\left(1 + \frac{0.06}{12}\right)^{1} + \cdots + 100\left(1 + \frac{0.06}{12}\right)^{60}.$$

Find A.

80. ***Annuity*** A deposit of \$50 is made at the beginning of each month in an account that pays 8% interest, compounded monthly. The balance A in the account at the end of 5 years is given by

$$A = 50\left(1 + \frac{0.08}{12}\right)^{1} + \cdots + 50\left(1 + \frac{0.08}{12}\right)^{60}.$$

Find A.

81. ***Annuity*** A deposit of P dollars is made at the beginning of each month in an account earning an annual interest rate r, compounded monthly. The balance A after t years is given by

$$A = P\left(1 + \frac{r}{12}\right) + P\left(1 + \frac{r}{12}\right)^{2} + \cdots + P\left(1 + \frac{r}{12}\right)^{12t}.$$

Show that the balance is given by

$$A = P\left[\left(1 + \frac{r}{12}\right)^{12t} - 1\right]\left(1 + \frac{12}{r}\right).$$

82. ***Annuity*** A deposit of P dollars is made at th beginning of each month in an account earning a annual interest rate r, compounded continuousl The balance A after t years is given by

$$A = Pe^{r/12} + Pe^{2r/12} + \cdots + Pe^{12tr/12}.$$

Show that the balance is given by