Example 2 **INTERNET** **Express each number in standard form.**

34. About 2.1×10^7 people, aged 12 to 17, use the Internet.

35. Approximately 1.1×10^7 teens go online daily.

Examples 3–4 **Evaluate each product or quotient. Express the results in both scientific notation and standard form.**

36. $(3.807 \times 10^3)(5 \times 10^2)$

37. $\frac{9.6 \times 10^3}{1.2 \times 10^{-4}}$

38. $\frac{2.88 \times 10^3}{1.2 \times 10^{-5}}$

39 $(6.5 \times 10^7)(7.2 \times 10^{-2})$

40. $(9.5 \times 10^{-18})(9 \times 10^9)$

41. $\frac{8.8 \times 10^3}{4 \times 10^{-4}}$

42. $\frac{9.15 \times 10^{-3}}{6.1 \times 10}$

43. $(1.4 \times 10^6)^2$

44. $(2.58 \times 10^2)(3.6 \times 10^6)$

45. $\frac{5.6498 \times 10^{10}}{8.2 \times 10^4}$

46. $\frac{1.363 \times 10^{16}}{2.9 \times 10^6}$

47. $(5 \times 10^3)(1.8 \times 10^{-7})$

48. $(2.3 \times 10^{-3})^2$

49. $\frac{6.25 \times 10^{-4}}{1.25 \times 10^2}$

50. $\frac{3.75 \times 10^{-9}}{1.5 \times 10^{-4}}$

51. $(7.2 \times 10^7)^2$

52. $\frac{8.6 \times 10^4}{2 \times 10^{-6}}$

53. $(6.3 \times 10^{-5})^2$

Example 5 **54.** **ASTRONOMY** The distance between Earth and the Sun varies throughout the year. Earth is closest to the Sun in January when the distance is 91.4 million miles. In July, the distance is greatest at 94.4 million miles.

a. Write 91.4 million in both standard form and in scientific notation.

b. Write 94.4 million in both standard form and in scientific notation.

c. What is the percent increase in distance from January to July? Round to the nearest tenth of a percent.

Evaluate each product or quotient. Express the results in both scientific notation and standard form.

55. $(4.65 \times 10^{-2})(5.91 \times 10^6)$

56. $\frac{2.548 \times 10^5}{2.8 \times 10^{-2}}$

57. $\frac{2.135 \times 10^5}{3.5 \times 10^{12}}$

58. $(3.16 \times 10^{-2})^2$

59. $(2.01 \times 10^{-4})(8.9 \times 10^{-3})$

60. $\frac{5.184 \times 10^{-5}}{7.2 \times 10^3}$

61. $(9.04 \times 10^6)(5.2 \times 10^{-4})$

62. $\frac{1.032 \times 10^{-4}}{8.6 \times 10^{-5}}$

LIGHT **The speed of light is approximately 3×10^8 meters per second.**

63. Write an expression to represent the speed of light in kilometers per second.

64. Write an expression to represent the speed of light in kilometers per hour.

65. Make a table to show how many kilometers light travels in a day, a week, a 30-day month, and a 365-day year. Express your results in scientific notation.

66. CCSS **MODELING** A recent cell phone study showed that company A's phone processes up to 7.95×10^5 bits of data every second. Company B's phone processes up to 1.41×10^6 bits of data every second. Evaluate and interpret $\frac{1.41 \times 10^6}{7.95 \times 10^5}$.