1.26 Convert the following temperatures to °C:
(a) 77 K
(b) 4.2 K
(c) 601 K

1.48 Perform the following conversions:
(a) 185 nm to m
(b) 4.5×10^9 yr to s
(c) 71.2 cm^3 to m^3
(d) 88.6 m^3 to L

1.52 Which of the following statements describe physical properties and which describe chemical properties? Explain
(a) Iron has a tendency to rust.
(b) Rainwater in industrialized regions tends to be acidic.
(c) Hemoglobin molecules have a red color.
(d) When a glass of water is left out in the sun, the water gradually disappears.
(d) Carbon dioxide in air is converted to more complex molecules by plants during photosynthesis.
1.69 The total volume of seawater on earth is $1.5 \times 10^{21}$ L. Assume that seawater contains 3.1% sodium chloride by mass and that its density is 1.03 g/mL. Calculate the total mass of sodium chloride in kilograms.

1.88 Sodium hypochlorite (NaOCl) is used to disinfect swimming pools. The ideal concentration for this purpose is 1 ppm chlorine (1 g NaOCl per $1 \times 10^6$ grams of H₂O). Calculate the volume of NaOCl solution (in mL) a homeowner should add to her swimming pool if the solution contains 6.0% NaOCl by mass and there are $2.0 \times 10^4$ gallons of water in the pool.

1 gallon = 3.79 L density of liquids = 1.0 g/mL

1.92 A gas company charges $1.30 for 15.0 ft³ of natural gas.
(a) Convert this rate to dollars per liter of gas.

b) If it takes 8.61 L of CH₄ to boil a liter of water, starting at room temperature (25°C), how much would it cost to boil a 2.1 L kettle of water?

1.93 Pheromones are compounds secreted by females of many insect species to attract mates. Typically, $1.0 \times 10^{-8}$ g of a pheromone is sufficient to reach all targeted males within a radius of 0.50 mi. Calculate the density of the pheromone (in g/L) in a circular air space having a radius of 0.50 mi and a height of 40 ft. [Hint: first calculate the volume of the cylinder described in cm³.]