CHEM 100 Chapter 1 Homework Key

Items boxed in purple were graded out of two points each, with two points earned for a correct answer and one point earned for a reasonable, but incorrect, attempt. Four points were awarded for submission of a completed assignment.

15. Hazards are greater than benefits for a person who is exposed daily to the paints than the hobbyist exposed once. The DQ would be increased for the professional painter and the hobbyist if both wore breathing masks capable of filtering out the *isocyanate*.

17. The DQ for the use of antibiotics in treating common sore throats is low as there is a small risk to the untreated patient. The DQ for treating more serous influenza is higher as the risk to the untreated patient is greater.

19. 100 g, 2 kg

24. 40 cm^2

31. (a) Physical (b) Chemical (c) Physical

38. Shampoo contains many substances such as water and soap; therefore it is a mixture. "Nothing artificial" reflects the sources of the compounds in the shampoo.

44. d

47. (a) 1000 mL = 1 L, $5.52 \times 10^4 \text{ mL} \times \frac{1 \text{ L}}{1000 \text{ mL}} = 552 \text{ L}$

(b) 1000 mg = 1 g $325 \text{ mg} \times \frac{1 \text{ g}}{1000 \text{ mg}} = 0.325 \text{ g}$

(c) 100 cm = 1 m, $27 \text{ cm} \times \frac{1 \text{ m}}{100 \text{ cm}} = 0.27 \text{ m}$

(d) 10 mm = 1 cm, $27 \text{ mm} \times \frac{1 \text{ cm}}{10 \text{ mm}} = 2.7 \text{ cm}$

(e) 1 ms = 1000 µs, $78 \text{ µs} \times \frac{1 \text{ ms}}{1000 \text{ µs}} = 0.078 \text{ ms}$

58. $D = \frac{m}{V}$, $V = \frac{m}{D}$

(a) $V = \frac{475 \text{g}}{8.94 \text{ g/cm}^3} = 53.1 \text{ cm}^3$

(b) $V = \frac{253 \text{ g}}{13.534 \text{ g/mL}} = 18.7 \text{ mL}$

66. K = °C + 273, K = 37 + 273 = 310 K

73. 200 kilowarhols = 200,000 warhols x 15 min/warhol = 3,000,000 min/60 min/hr = 50,000 hr/24 hrs/day = 2083.3 days/365 days/year = 6 years

82. $D = \frac{m}{V}$, solve for volume.

$V = \frac{m}{D}$, $V = \frac{3180 \text{ g}}{7.9 \text{ g/cm}^3} = 4.0 \text{ x } 10^2 \text{ cm}^3$