

Ch. 2 Review

$$1. \% \text{ERROR} = \frac{|24.5^\circ\text{C} - 31.2^\circ\text{C}|}{31.2^\circ\text{C}} \times 100 = 21.5\%$$

$$2. \% \text{ERROR} = \frac{|44.2\text{g/mol} - 58.14\text{g/mol}|}{58.14\text{g/mol}} \times 100 = 24\%$$

} Very Poor Accuracy
in each experiment

3. 2 4. 3 5. 1 6. 4 = # of sig. figs.

7. 5.06×10^{-4} mL 8. 4.2×10^{10} pm 9. 0.00500 km 10. 820.0 m

11. $(0.00600\text{ m})^3 \div (0.030\text{ s})^2 = 0.20\text{ m/s}$ 14. $(5,200\text{ cm})^2 (0.07\text{ cm}) = 400\text{ cm}^2$

12. $(167.55\text{ g}) - (87.3\text{ g}) = 80.3\text{ g}$ 15. $(12.5\text{ g})^3 \div (6.0\text{ g/cm}^3)^2 = 2.1\text{ cm}^3$

13. $(50.75\text{ mL}) + (155\text{ mL}) = 206\text{ mL}$ 16. $(370\text{ mg}) + (1200\text{ mg}) = 1600\text{ mg}$

17. $M = D \times V = (2.72\text{ g/cm}^3)(24.9\text{ cm}^3) = 67.7\text{ g}$ 19. $M = D \times V$

18. $V = \frac{m}{D} = \frac{38\text{ g}}{0.017\text{ g/L}} = 2200\text{ L}$
 $= (21.4\text{ g/cm}^3)(0.750\text{ cm}^3)$
 $= 16.1\text{ g}$

20. $\frac{177\text{ mL}}{1000\text{ mL}} = 0.177\text{ L}$

22. $\frac{0.093\text{ kg} \left| \frac{1000\text{ g}}{1\text{ kg}} \right| \frac{1000\text{ mg}}{1\text{ g}}}{1} = 93,000\text{ mg}$

21. $\frac{56\text{ m} \left| \frac{100\text{ cm}}{1\text{ m}} \right|}{1} = 5600\text{ cm}$

23. $\frac{54,400\text{ um} \left| \frac{1\text{ m}}{1,000,000\text{ um}} \right| \frac{10\text{ dm}}{1\text{ m}}}{1} = 0.0544\text{ dm}$

24. $\frac{1.5\text{ km} \left| \frac{1000\text{ m}}{1\text{ km}} \right| \frac{100\text{ cm}}{1\text{ m}} \left| \frac{1\text{ in}}{2.54\text{ cm}} \right| \frac{1\text{ ft}}{12\text{ in}} \left| \frac{1\text{ step}}{2.25\text{ ft}} \right|}{1} = 2187\text{ steps so } \sim 2200\text{ steps}$

25. $\frac{5.50\text{ ft} \left| \frac{12\text{ in}}{1\text{ ft}} \right| \frac{2.54\text{ cm}}{1\text{ in}}}{1} = 168\text{ cm tall}$

26. $\frac{1.0\text{ m}^3 \left| \frac{(100\text{ cm})^3}{(1\text{ m})^3} \right| \frac{1\text{ mL}}{1\text{ cm}^3} \left| \frac{1\text{ can}}{355\text{ mL}} \right|}{1} = 2800\text{ cans}$

27. $\frac{20.0\text{ oz} \left| \frac{1\text{ qt}}{32\text{ oz}} \right| \frac{1\text{ L}}{1.057\text{ qt}} \left| \frac{1000\text{ mL}}{1\text{ L}} \right|}{1} = 591\text{ mL}$

28. $\frac{2.0\text{ ft} \left| \frac{12\text{ in}}{1\text{ ft}} \right| \frac{2.54\text{ cm}}{1\text{ in}} \left| \frac{10\text{ mm}}{1\text{ cm}} \right| \left| \frac{1\text{ ant}}{4.0\text{ mm}} \right|}{1} = 15\text{ ants}$

29. $\frac{15\text{ people} \left| \frac{28.0\text{ g}}{1\text{ serving}} \right| \frac{1\text{ box}}{107\text{ g}}}{1} = 4\text{ boxes}$

30. $\frac{1.0\text{ qt} \left| \frac{1\text{ L}}{1.057\text{ qt}} \right| \frac{1000\text{ mL}}{1\text{ L}} \left| \frac{0.80\text{ g}}{1\text{ mL}} \right| \frac{1\text{ kg}}{1000\text{ g}} \left| \frac{2.2\text{ lbs}}{1\text{ kg}} \right|}{1} = 1.7\text{ lbs}$