

# Answers to Even # Homework Problems (8<sup>th</sup> Edition)

## Chapter 1

1.16 Chemical changes: (a), (e), (f), (g)

Physical: (b), (c), (d)

1.18 (a) 403000 (b) 3200  
(c) 0.0000713 (d) 0.000000000555

1.28 (a) 25000 (b) 4.1 (c) 15.5

1.30 SKIP

1.34 (a) 100 cm (b) 230 mL (c) 75 kg  
(d) 15 mL (e) ? (The mass of a paper clip is  $\approx 1$  g)  
(f) 100 mm (g) 40 g

1.36 (a) 160°C (b) 100°C (c) -17.8°C  
(d) -157°C

1.38 Conversions

- (a)  $42.6 \text{ kg} * \frac{2.205 \text{ lbs}}{1 \text{ kg}} = 93.9 \text{ lbs}$
- (b)  $1.62 \text{ lbs} * \frac{453.6 \text{ g}}{1 \text{ lb}} = 735 \text{ g}$
- (c)  $34 \text{ in} * \frac{2.54 \text{ cm}}{1 \text{ in}} = 86.36 \text{ cm}$
- (d)  $37.2 \text{ km} * \frac{1 \text{ mile}}{1.609 \text{ km}} = 23.1 \text{ mi}$
- (e)  $2.76 \text{ gal} * \frac{3.785 \text{ L}}{1 \text{ gal}} = 10.4 \text{ L}$
- (f)  $62 \text{ g} * \frac{1 \text{ oz}}{28.35 \text{ g}} = 2.2 \text{ oz}$
- (g)  $33.61 \text{ qt} * \frac{0.946 \text{ L}}{1 \text{ qt}} = 31.8 \text{ L}$
- (h)  $43.7 \text{ L} * \frac{1 \text{ gal}}{3.785 \text{ L}} = 11.5 \text{ gal}$
- (i)  $1.1 \text{ mi} * \frac{1.609 \text{ km}}{1 \text{ mi}} = 1.8 \text{ km}$
- (j)  $34.9 \text{ mL} * \frac{1 \text{ fl oz}}{29.57 \text{ mL}} = 1.18 \text{ fl oz}$

1.42  $25.00 \frac{\text{miles}}{\text{gal}} * \frac{1.609 \text{ km}}{1 \text{ mile}} * \frac{1 \text{ gal}}{3.785 \text{ L}} = 10.63 \frac{\text{km}}{\text{L}}$

1.46  $d = \frac{\text{mass}}{\text{volume}} = \frac{1075 \text{ g}}{334.5 \text{ mL}} = 3.21 \frac{\text{g}}{\text{mL}}$

1.48  $V = \frac{m}{d} = \frac{163 \text{ g}}{4.54 \text{ g/mL}} = 35.9 \text{ mL}$

1.50  $m = d * V = 0.791 \frac{\text{g}}{\text{mL}} * 280 \text{ mL} = 220 \text{ grams}$

1.56  $q = s * m * \Delta T$

- (a)  $0.22 \frac{\text{cal}}{\text{g}^\circ\text{C}} * 52.7 \text{ g} * 185 \text{ C}^\circ = 2100 \text{ cal}$
- (b)  $0.61 \frac{\text{cal}}{\text{g}^\circ\text{C}} * 93.6 \text{ g} * 90 \text{ C}^\circ = 5100 \text{ cal}$
- (c)  $0.038 \frac{\text{cal}}{\text{g}^\circ\text{C}} * 3400 \text{ g} * 763 \text{ C}^\circ = 99000 \text{ cal}$
- (d)  $0.48 \frac{\text{cal}}{\text{g}^\circ\text{C}} * 71.4 \text{ g} * 72 \text{ C}^\circ = 2500 \text{ cal}$

## Chapter 2

2.20 Protons and Neutrons in nucleus, Electrons outside of nucleus

2.22 (a) 48 (b) 190 (c) 79 (d) 244

2.26 (a)  $^{13}\text{C} = 7$  (b)  $^{73}\text{Ge} = 41$   
(c)  $^{188}\text{Os} = 112$  (d)  $^{195}\text{Pt} = 117$

		# Protons	# Neutrons
(a)	$^{22}\text{Ne}$	10	12
(b)	$^{104}\text{Pd}$	46	58
2.28 (c)	$^{35}\text{Cl}$	17	18
(d)	$^{128}\text{Te}$	52	76
(e)	$^7\text{Li}$	3	4
(f)	$^{238}\text{U}$	92	146

2.42 Group 1: Li, K Group 2: Mg, Ca, Ba  
Group 15: N, P, As Group 17: F, I  
Group 18: He, Ne

2.44 (a) Al (b) As (c) Ga (d) Ga

2.50 (a) Li · (b) : Ne : (c) · Be ·  
··

(d) · C · (e) · Mg ·  
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