Answers

This section includes numerical answers to questions in Chapter and Unit Reviews that require calculation.

Chapter 1 Review, pp. 62–63

17. (a) 20, 20, 22
    (b) 38, 738, 52
    (c) 55, 55, 82
    (d) 26, 26, 33
    (e) 11, 11, 13
24. (c) <48.4 KJ/mol

Unit 1 Review, pp. 150–153

1. (a) 53, 74, 53
   (b) 15, 17, 15
   (c) 29, 35, 29
   (d) 80, 123, 80
3. 62.5 g

Chapter 4 Review, pp. 199–201

2. 24 u
3. 1.5 u
6. 28.11 u
8. (a) 100.09 g/mol
   (b) 92.02 g/mol
   (c) 286.19 g/mol
9. (a) 17.11 mol
   (b) 22.72 mol
   (c) 55.49 mol
10. (a) 48.0 g
    (b) 0.301 g
    (c) 240 kg
11. (a) 2.5×10^{23}
    (b) 4.6×10^{20}
    (c) 3.91×10^{23}
    (d) 1.76×10^{24}
12. (a) 294.34
    (b) 1.2×10^{24}
    (c) 1.3×10^{21}
13. (a) 35.4%
    (b) 52.9%
    (c) 9.1%
15. (a) $C_4H_5N_2O$
    (b) $C_8H_{10}N_4O_2$
16. (a) $C_4H_{14}O$
    (b) $C_8H_8O_2$
17. $C_8H_8O_3$
18. Na 42.1%; P 18.9%; O 39.0%
19. Na 33.2%; As 36.0%; O 30.8%
20. (a) $ZnCl_2$

Chapter 5 Review, pp. 252–253

8. 2.13×10^3 g
9. (a) 6.30 g
   (b) 1.47 g
10. (b) 39.4 g
11. 168 g
12. (c) 23.1 g
    (d) 97.8%
14. (a) 11.8 g
    (b) 70.9 g
    (c) 6.36 g
15. (b) 859.6 g
    (c) 527.9 g
    (d) 937.5 g
16. 3.77 kg

Unit 2 Review, pp. 256–259

1. (a) 2.87 kg
   (b) 73.8 g
   (c) 3.58 g
   (d) 0.115 g
   (e) 66.5 kg
   (f) 4.75 kg
2. (a) 9.73×10^{-2} mol
   (b) 0.186 mol
   (c) 84.2 mol
   (d) 0.832 mol
   (e) 0.100 mol
   (f) 2.98×10^{-4} mol
3. 5.00 g $O_{2(g)}$
4. 3.34 mmol
6. (a) 54.21% Ba, 20.53% Cr, 25.26% O
   (b) 49.54% Co, 10.10% C, 40.36% O
   (c) 20.66% Fe, 39.34% Cl, 4.48% H, 35.51% O
7. (a) 2:3:2:2
   (b) 2:3:2:3
   (c) 2:2:1
9. (a) 8:1:8
   (b) 2:15:12:6
   (c) 2:2:2:1
13. $C_{10}H_{14}N_2$
19. 95.9%
20. (b) 2.32 g
    (c) 8.38 g
21. (b) 3.48 g
    (c) 83.5%
22. $FePO_4 \cdot 4H_2O$
23. (a) 0.138 g
    (b) 0.0190 g
24. (a) 8.42 g
    (b) 11.6 g
25. (a) 146.6 g
    (b) 106.6 g
26. 2.93 g
27. (a) 4.67 g
    (d) 4.29 g

Chapter 6 Review, pp. 309–311

5. 5.0 g
6. 5.9% MF, 51 g; 2.0% MF, 0.15 kg; 1.2% MF, 0.25 kg
7. 0.30 L
8. 11 mg
9. (a) 0.70 mol/L
   (b) 0.125 mol/L
   (c) 2.0 mol/L
   (d) 0.66 mmol/L
10. (c) Na^+, 125 ppm; K^+, 138 ppm
11. 12.6 g
12. 42.8 mL
13. 61 mL
17. (a) 2.82 g
18. (a) 25.0 mL

Chapter 7 Review, pp. 358–359

9. (a) 0.138 L
   (b) about 0.35 L
10. 0.143 mol/L
14. (b) 0.528 mol/L
15. (b) 0.799 mol/L

Chapter 8 Review, pp. 403–405

6. (a) 2.1
   (b) 2.60
7. (a) 2.8×10^{-12}
   (b) 3.2×10^{-4}