Chapter 20 Even Answers

2. 0.105 C˚
4. 87.0 ˚C
6. 88.2 W
8. (a) 1.68×10^{18} J (b) 53.1 yr
10. $\dfrac{(m_{\mathrm{Al}}c_{\mathrm{Al}} + m_{\mathrm{c}}c_{\mathrm{w}})T_{\mathrm{c}} + m_{\mathrm{h}}c_{\mathrm{w}}T_{\mathrm{h}}}{m_{\mathrm{Al}}c_{\mathrm{Al}} + m_{\mathrm{c}}c_{\mathrm{w}} + m_{\mathrm{h}}c_{\mathrm{w}}}$
12. 1.22×10^{5} J
14. (a) all ice melts, 40.4˚C (b) 42.0 grams of ice unmelted, 0˚C
16. 12.9 g
18. liquid lead at 805˚C, if the specific heat is constant
20. (a) 6.08×10^{5} J (b) -4.56×10^{5} J
22. (a) +12.0 MJ (b) -12.0 MJ
24. 0.0962 g
26. $nR(T_2 - T_1)$
28. (a)–567 J (b) 167 J
30. (a) 12.0 kJ (b) –12.0 kJ
32. 42.9 kJ
34. (a) 7.65×10^{-3} m^3 (b) 305 K
36. (a) 48.6 mJ (b) 16.2 kJ (c) 16.2 kJ
38. 2.47 L
40. (a) 1300 J (b) –100 J (c) –900 J (d) –1400 J
42. 2.22×10^{-2} W / m · C°
44. 1.34 kW
46. $(k_1A_1 + k_2A_2)(T_h - T_c) / L$; $(\sum k_iA_i)(T_h - T_c) / L$
48. 3.77×10^{26} W
50. 3.49×10^{3} K
52. 277 K
54. 2.27×10^{3} m
56. (a) 13.0˚C (b) –0.532 C° / s
58. $c = \dfrac{\wp}{\rho R\,\Delta T}$
60. (a) $-P_iV_i / 2$ (b) $-1.39P_iV_i$ (c) zero
62. (a) 2000 W (b) 4.47˚C
64. 3.76 m / s
66. 1.44 kg
68. 38.6 m^3 / day
72. 800 J / kg · C°