Comments and Errors
Solution Manual, Chemical Principles, 7th Edition
(Also includes Textbook, Self-Test errors, etc.)

L.35 in the textbook question:

In the third reaction step the compound "$FeBr_2$" needs to be "Fe_3Br_8".

1A.15

Typo. Answer is n = 3 to n = 1 as energy is emitted.

1B.27

Solution manual states $\Delta v = 5.0\ m.s^{-1}$

Velocity was given as $5.00 \pm 5.0\ m.s^{-1}$

Therefore $\Delta v = 10.0\ m.s^{-1}$

With the correction, the final answer is: $\Delta x = 6.7 \times 10^{-37}$ m

Self-test 4A.1A

Water expands when it freezes. How much work does 100. g of water do when it freezes at 0 C and pushes back the metal wall of a pipe that exerts an opposing pressure of 1070 atm? The densities of water and ice at 0 C are 1.00 $g.cm^{-3}$ and 0.92 $g.cm^{-3}$, respectively.

Given: P = 1070 atm mass of water = 100. g

density of $H_2O(l)$ = 1.00 $g.cm^{-3}$ Density of $H_2O(s)$ = 0.92 $g.cm^{-3}$

Use densities to convert mass to volume for both 100.g of liquid water and 100.g of ice.

Then subtract the two values to find the associated change in volume as the water freezes to ice, ΔV

Volume $H_2O(l)$: 100g/1.00 $g.cm^{-3}$ = 100 cm^3

Volume $H_2O(s)$: 100g/0.92 $g.cm^{-3}$ = 108.7 cm^3

ΔV = V(final, ice) – V(initial, water) = 108.7 cm^3 – 100 cm^3 = 8.7 cm^3

Use work equation and do necessary unit conversions:

$w = -P\Delta V$

$w = -(1070\ atm)(8.7\ cm^3)(1\ mL/1\ cm^3)(1\ L/1000\ mL)(101.325\ J/\ 1\ L.atm) = -943\ J = -0.94\ kJ$

4A.3 (c) Error in the back of the textbook. Typo: “2” is missing. Answer is: 28 J

4D.21. (c) Solutions manual states enthalpy of formation for $K_2S(aq)$ is -417.5 kJ.mol^{-1}, when the appendix of enthalpies states that it is -471.5 kJ.mol^{-1}. This typo results in the solutions manual answer +15.28 kJ.mol^{-1} when it should be -38.72 kJ.mol^{-1}.

4F.11

First calculate the decrease in entropy resulting from the decrease in volume. Then calculate the increase in entropy resulting from the increase in temperature. Then add these to get the net entropy change. Assume ideal behavior and 1 mol N_2 gas.

$$\Delta S = nR\ln\frac{V_2}{V_1}$$
$$= (1.00\ \text{mol})(8.314\ \text{J.K}^{-1}.\text{mol}^{-1})\ln\frac{0.500\ \text{L}}{3.00\ \text{L}}$$
$$= -14.897\ \text{J.K}^{-1} \qquad (-14.9\ \text{J.K}^{-1}\ \text{using 3 sig. fig.})$$

$$\Delta S = n\text{C}_\text{v}\ln\frac{T_2}{T_1}\ \text{where}\ \text{C}_\text{v} = \frac{5}{2}\text{R for a diatomic ideal gas}$$
$$= (1.00\ \text{mol})\frac{5}{2}(8.314\ \text{J.K}^{-1}.\text{mol}^{-1})\ln\frac{301.25\ \text{K}}{291.65\ \text{K}}$$
$$= 0.673\ \text{J.K}^{-1}$$

Net change in entropy, ΔS_{net} = (-14.897 + 0.673) J.K^{-1} = -14.2 J.K^{-1}

(Rounding off at the end using 3 sig. fig.)

4.17 (e) Typo. Decimal point incorrectly placed: -2966.7 kJ should be -2.9667 kJ

5G.3 (b) In the given balanced chemical equation the coefficient in front of N_2 should be 5. This also changes K in the answer.

5G.15 The decimal point is missing. -27 kJ.mol^{-1} should be 2.7 kJ.mol^{-1}

Table 5G.2 in the textbook has an error.
For the reaction $N_2O_4 \rightleftharpoons 2NO_2$ at 298 K, the Kc value is 6.1 x 10^{-3}.
5.39 Since the reverse reaction is needed the inverse of 6.1 x 10^{-3} is 1.6 x 10^{2}. Which is the correct value used in the solutions manual for 5.39. The solutions manual is correct.

5J.5 d) Correct equation in question: $2HD(g) \rightleftharpoons H_2(g) + D_2(g)$

5J.9: Correct balanced equation: $4\ NH_3(g) + 5\ O_2(g) \rightleftharpoons 4\ NO(g) + 6\ H_2O(g)$

6A.19 part c. Question has a typo. Should be 3.1×10^{-3} mol.L^{-1}

6B.9 Omit due to errors.

6D.5 (d) % protonation = $(1.09 \times 10^{-4})/(0.0073) \times 100\%$, which should = 1.5%, but the answer is incorrectly typed as 2.5%.

6.65 Typo. Should read: At pH = 0 (not “At pH = 1”)
The normal pH scale is 0-14.
Everything else is correct.

7D.5 Typo. 37 ^{o}C = 310 K.
Typo. -0.59 should be = 0.59
Everything else is correct. These were typeset errors. Not calculation errors.

9C.3d has an error/typo in the question.
Part d, the name should be: sodium diaquabis(oxalato)ferrate(III)
See Example 9C.1b in the textbook as a comparison.