Solutions to LM problems, part 2

---- Solutions to problems from part 5 ----

Comments: (i) Typos and errors are always possible – please point out any issues and errors, so that I can fix them! (ii) I have copied the answers from the Laidler/ Meiser solution manual, and I may have not always paid full attention to the proper number of significant figures.

LM29 $-w = 3.06$ kJ mol^{-1}; $\Delta H = 40.6$ kJ mol^{-1}; $\Delta U = 37.5$ kJ mol^{-1}; $\Delta G = 0$; $\Delta S = 109$ J K^{-1} mol^{-1}

LM30 $\Delta U = \Delta H = 0$; $\Delta S = 19.1$ J K^{-1} mol^{-1}; $\Delta A = -5.71$ kJ mol^{-1} = ΔG

LM31 (a) $\Delta G = -34.1$ kJ mol^{-1}; (b) $\Delta G = 16.9$ kJ mol^{-1}; (c) $\Delta G = 85.0$ kJ mol^{-1}; T = 501 K

LM32 Net: $\Delta H = 44.0$ kJ mol^{-1}; $\Delta S = 214.5$ J K^{-1} mol^{-1}; $\Delta G = -19.9$ kJ mol^{-1}

LM33 (a) ΔU; ΔH (b) ΔS (c) none (d) ΔG (e) ΔU (f) none

LM34 $\Delta G_m = 1.485$ kJ mol^{-1}.

LM35 $\Delta G_m = -4.28$ kJ mol^{-1}. *May require to look up an integral.*

LM36 $\Delta U = \Delta H = 0$; $\Delta S = 5.76$ J K^{-1} mol^{-1}; $\Delta G = -1.73$ kJ mol^{-1} = $w_{rev} = -q_{rev}$. *I have an older handwritten note here that there might be sign error in some of these numbers – I did not double-check this.*