Week 7 Worksheet

Chem 11100-2: Section 33

Nov. 9, 2021

Remarks: The following information might be useful

1. Heat capacity of lead is 0.128 J/g·°C

2. Heat capacity of water is 4.184 J/g·°C

Problem 1: A certain system gives off 100. kJ of heat energy when 30. kJ of work energy are applied to it. What is the overall ΔE for this process?

Problem 2: A -10.5°C lead block with a mass of 10.5 g is added to a cup that contains 220. grams of 22.0°C water. What will be the final temperature once thermal equilibrium has been reached?

Problem 3: For the following reactions, identify the oxidation state of each atom in the reaction. Further, identify which specifies is being oxidized and which is being reduced.

a) Zn_3N_2 (s) $\longrightarrow$ 3 Zn (s) + N_2 (g)

b) Cl_2 (g) + 2 KBr (s) $\longrightarrow$ Br_2 (l) + 2 KCl (s)

c) 2 $AgNO_3$ (aq) + Cu (s) $\longrightarrow$ $Cu(NO_3)_2$ (aq) + 2 Ag (s)