Thermodynamic Homework2

1. How much energy, in J and kJ, is required to raise the temperature of 123.4g of aluminum metal from 3.0 °C to 31.6 °C? c_{Al}= 0.900 J/g °C

2. How much energy is released when 44.6g of lithium metal is cooled from 82.2 °C to 23.0 °C? Answer in both J and kJ. C_{Li} = 3.556 J/g °C.

3. How much energy, in J and kJ, is required to raise the temperature of 2.03g of mercury metal from 8.1 °C to 77.4 °C? c_{Hg}=0.138 J/g °C

4. How much energy, in J and kJ, is released when 890.6 g of iron metal is cooled from 456 °C to 22 °C? c_{Fe} = 0.444 J/g °C

5. What increase in temperature will result if 212.0g of copper absorbs 4.08kJ of heat energy? C_{Cu} = 0.385 J/g °C

6. A 83.7g sample of nickel absorbs 483 J of energy when the temperature increases from 13.8 °C to 26.8 °C. What is the specific heat of nickel?

7. A reaction requires that 96.7g of PCl_3 be raised from 31.7 °C to 69.2 °C. How much energy will this require given that the specific heat of PCl_3 is 0.874 J/g °C