Hess's Law, ΔH_f, and Bond Energy

1. Which compound is more stable - KBr(s) or KCl (s)? Explain.

_____

_____

_____

2. From the equation below determine the molar enthalpy of formation for benzene(C_6H_6).

$C_6H_6(g) + 7½\ O_2(g) \rightarrow 6\ CO_2(g) + 3\ H_2O(g)$ $\Delta H_{rxn} = -3267.4$ kJ

3. Use the average bond energies from p. 847 to estimate the heat of reaction for :

$C_5H_{12(g)} + 8\ O_{2(g)} \rightarrow 5\ CO_{2(g)} + 6\ H_2O_{(g)}$

4. Use the average bond energies from p. 847 to estimate the heat of reaction for :

$$C_3H_6(g) + \frac{9}{2} O_2(g) \rightarrow 3\ CO_2(g) + 3\ H_2O(g)$$

5. Arrange the following in order of increasing ΔH. (lowest first)

$KCl(l) \rightarrow KCl(g)$ $KCl(s) \rightarrow KCl(l)$ $KCl(s) \rightarrow K(s) + Cl_2(g)$

2. +181 kJ *3. -3542 kJ* *4. -2007 kJ*