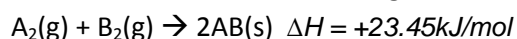


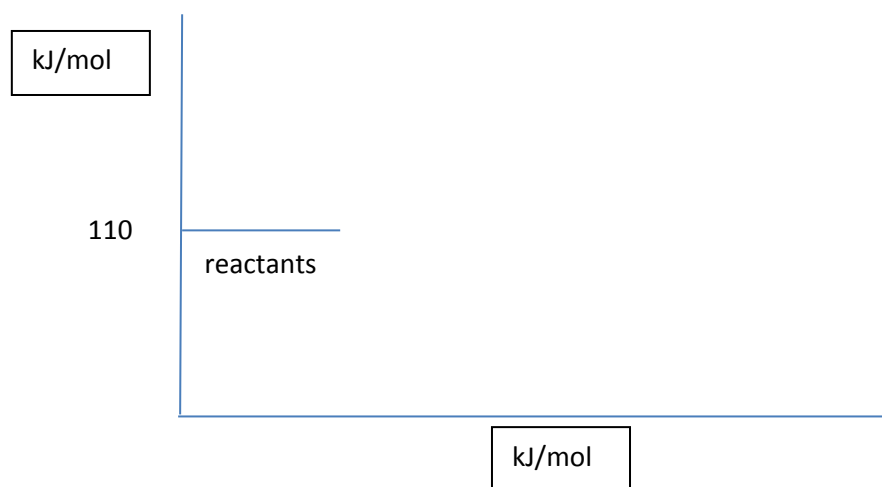
Friday worksheet 11 – Enthalpy and energy diagrams

1) Diesel fuel is used to heat 2.89 kg of water at 25.0 °C to a temperature of 90.0 °C. What mass, in kg, of diesel is needed to heat the water if 30.00% of the energy of combustion is allowed to escape into the environment.

2) Consider the chemical reaction given below.



The amount of energy needed to break bonds during this reaction is 42.00 kJ/mol .



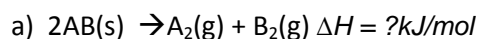
i. Draw the energy profile for this reaction on the set of axes above.

Label the:

- $\Delta H$
- Activation energy for both the forward and backward reactions. Give the magnitude of the activation energies.

ii. What is the energy content of the products?

iii. Consider the two chemical equations below



How does the  $\Delta H$  of each of the above two reactions differ from +23.45 kJ/mol.  
Explain