

Homework 2

Answer the following questions in details (systematically with laws and units):

1. Which of the following changes are reversible and which are irreversible?
 - a) Vaporization of benzene into vacuum at 60 °C
 - b) Solution of barium nitrate in water at 40 °C
 - c) Diffusion of a gas into another gas at constant T and P
2. An acid was added to a metal then the reaction occurred producing hydrogen gas its volume 30 L. calculate the achieved work by the gas under atmospheric pressure 1 atm. suppose the temperature is constant.
3. Calculate the obtained work from expansion of one mole of ideal gas through reversible process at 480 K, from 23.17 L to 35.22 L.
4. Calculate the required work to compress 1 g of hydrogen gas at 300 K from initial pressure 1 atm to final pressure 100 atm.
5. One mole of ideal gas its volume increase 10 times of its original volume at 298 K, what is the value of obtained work?
6. For this reaction :



Would the obtained work from this reaction be positive or negative or zero, why?

7. A piece of zinc metal added to HCl solution then the reaction occurs and 35 L of H₂ are produced with a pressure of 1 atm. Calculate the work exerted by gas in (L.atm) and (J).