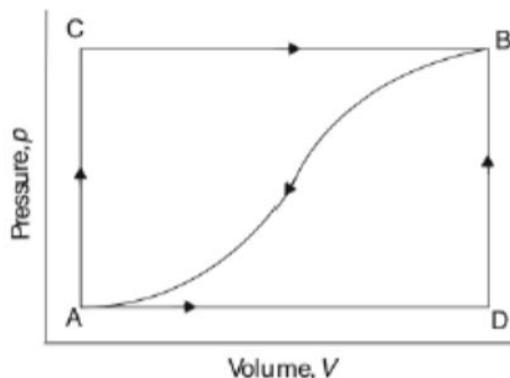


Intro to Biological Thermodynamics  
Summer HSSP 2020  
Week 1 Problems – 7/11/2020

1.

When a system is taken from state A to state B along the path ACB in the figure below, 80 J of heat flows into the system and the system does 30 J of work. (a) How much heat flows into the system along path ADB if the work done is 10J? (b) When the system is returned from state B to A along the curved path, the work done on the system is 20J. Does the system absorb or liberate heat, and how much? (c) If  $U_D - U_A = +40\text{J}$ , find the heat absorbed in the processes AD and DB.



2. 6 moles of hydrogen are contained in a 1.0 L at 30 C. What would be the new temperature if the volume of the cylinder was increased to 1.5 L isobarically (keeping pressure constant)?