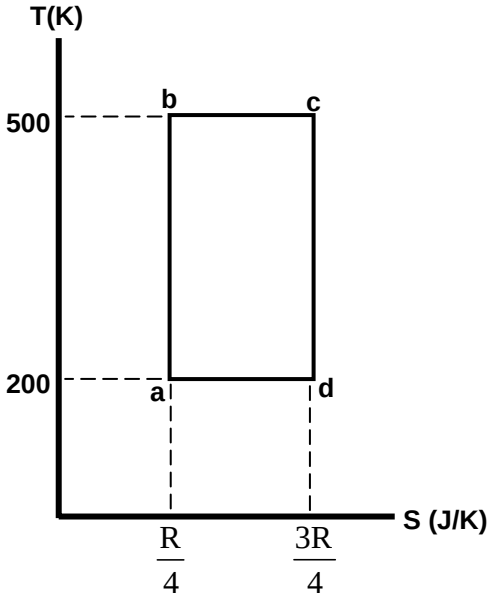
Problems of the Week 3

Always show your all work to receive credit (NO WORK=NO CREDIT)-1point

1. Since entropy is a state function, its value can be expressed in terms of the variable describing the system. Thus instead of drawing a PV-diagram to describe a system one can draw an TS-diagram, an VS-diagram, or a PS-diagram. Let's focus on the TS-diagram. Since $dS = \frac{dQ}{T}$, then the integral under the TS curve represents heat flow, Q. The graph below represents TS-diagram of a reversible cyclic system. On the graph identify each thermodynamic process and indicate the direction of the process (abcda or adcba) if this system were to function as a refrigerator (**1 point**).



2. From the information given in Problem 1, calculate the net work done by the working substance during one cycle (**1 point**).
   A. -2080J B. -1250J C. -831J D. 1660J E. 2500J