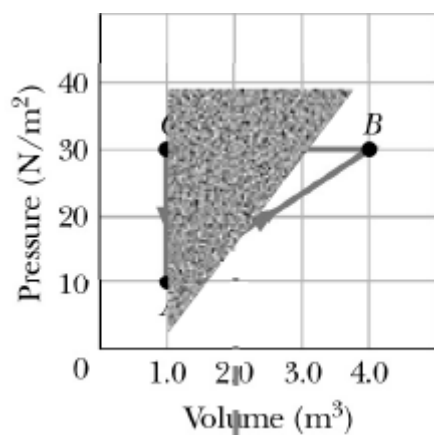**Answer on Question #69684-Physics-Mechanics-Relativity**

A gas within a closed chamber undergoes a cycle shown in Figure 1. Calculate the net heat added to the system in the complete cycle.



**Solution**

In one complete cycle:

$$\Delta U = 0$$

Thus,

$$Q = W$$

The work is equal o the area enclosed with negative sign for counter clockwise direction:

$$W = -\frac{1}{2}\Delta p \Delta V = -\frac{1}{2}(30 - 10)(4 - 1) = -\frac{1}{2}(20)(3) = -30\,J.$$

So,

$$Q = W = -30\,J.$$

**Answer: $-30\,J$.**