

Work is done on the system and value of work is -ive.

Example: The pressure and volume varies in a system during a process as $pV^{3/2} = k$. Find the work done by/on the system when it expands from V_1 to V_2 .

Solution: $W = \int_{V_1}^{V_2} p dV$; $\because V_2 > V_1 \rightarrow W = +ive$

$$\because pV^{3/2} = k \Rightarrow p = \frac{k}{V^{3/2}}$$

$$W = \int_{V_1}^{V_2} \frac{k}{V^{3/2}} dV = k \int_{V_1}^{V_2} V^{-3/2} dV$$