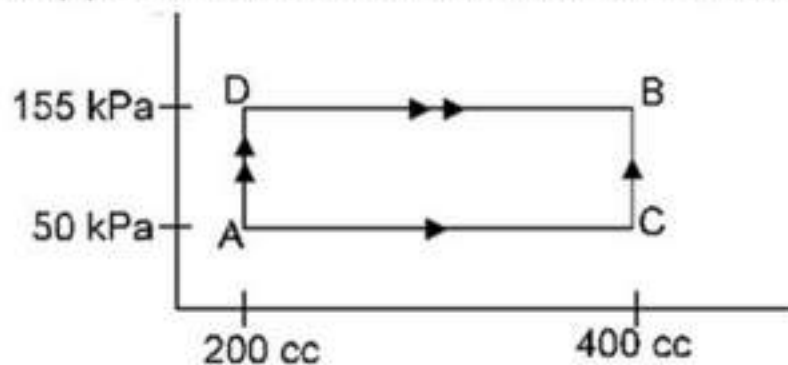


NUMERICAL PROBLEMS ON FIRST LAW OF THERMODYNAMICS

EXAMPLE: The pressure of a gas changes linearly with volume from 10 kPa, 200cc to 50 kPa, 55cc. (a) Calculate the work done by the gas. (b) If no heat is supplied or extracted from the gas, what is the change in the internal energy of the gas?

EXAMPLE: 50 cal of heat should be supplied to take a system from the state A to the state B through the path ACB as shown in figure. Find the quantity of heat to be supplied to take it from A to B via ADB.



EXAMPLE: 1.0 m^3 of water is converted into 1671 m^3 of steam at atmospheric pressure and 100°C temperature. The latent heat of vaporization of water is $2.3 \times 10^6 \text{ J/kg}$. If 2.0 kg of water be converted into steam at atmospheric pressure and 100°C temperature, then how much will be the increase in its internal energy? (Density of water = $1.0 \times 10^3 \text{ kg/m}^3$, atmospheric pressure = $1.01 \times 10^5 \text{ Pa}$)