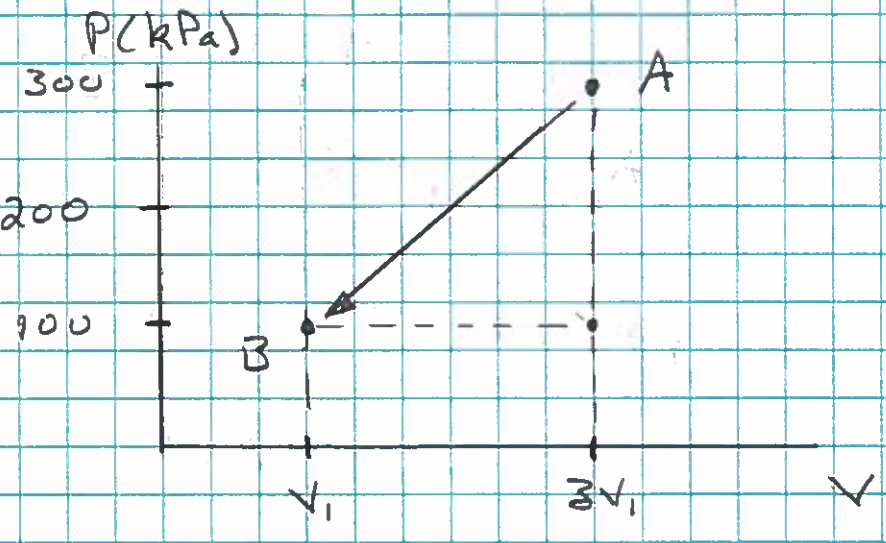

Work going $A \to B = W_{A\to B} = 80\,J.$

$$W_{A\to B} = -\int_{V_A}^{V_B} p\,dV = -(\text{area under path})$$

So

$$W_{A\to B} = -\{-(\text{area of rectangle}) - (\text{area of triangle})\}$$

$$= (3V_1 - V_1)(100\times10^5\,Pa) + \tfrac{1}{2}(3V_1 - V_1)(300\times10^5\,Pa - 100\times10^5\,Pa)$$

$$= (200\times10^5\,Pa)V_1 + (200\times10^5\,Pa)V_1$$

$$V_1 = \frac{W_{A\to B}}{2(200\times10^5\,Pa)} = \underline{2\times10^{-6}\,m^3}$$

$$= \underline{200\,cm^3}$$