An ideal gas undergoes a quasi static, reversible process in which its molar heat capacity C remains constant. If during this process the relation of pressure P and volume V is given by PV^n = constant, then n is given by (Here C_P and C_V are molar specific heat at constant pressure and constant volume, respectively) : (1) $n = \frac{C_P}{C_V}$ (2) $n = \frac{C - C_P}{C - C_V}$ (3) $n = \frac{C_P - C}{C - C_V}$ (4) $n = \frac{C - C_V}{C - C_P}$ (n denotes number of moles) Based on JEE Main 2016 123IITJEE.COM	$dQ = dU + dW$ $\therefore nCdT = nC_V dT + PdV$ $\therefore n(C - C_V)dT = PdV$..........(1) Now, PV^n = constant $\because PV = nRT, TV^{n-1}$ = constant Or, $\ln T + (n-1)\ln V$ = constant $\therefore \frac{dT}{T} + (n-1)\frac{dV}{V} = 0$ Or, $VdT = (1-n)TdV$..........(2) From (1) & (2), $\frac{n(C - C_V)}{V} = \frac{P}{(1-n)T}$ $\therefore n(C - C_V) = \frac{1}{(1-n)}\frac{PV}{T} = \frac{1}{(1-n)}nR$ $\therefore (C - C_V) = \frac{R}{(1-n)} = \frac{C_P - C_V}{1-n}$ $\therefore 1 - n = \frac{C_P - C_V}{C - C_V}$ $\therefore n = 1 - \frac{C_P - C_V}{C - C_V} = \frac{C - C_P}{C - C_V}$ Hence, Option (2).