TH-5

1 mole of a perfect gas for which Cv = 3R/2, independent of temp., is taken from a temp of 100 K and pressure of 10^5 Pa to 400 K and 8\*10^5 Pa by two different paths.

1. it goes at constant volume from 100 K to 400 K and then isothermally to the final pressure.
2. It goes at constant pressure from 100 K to 400 K and then isothermally to the final volume.

Calculate the heat absorbed or given out in each step and the algebraic sum for each path.

Compare these with the corresponding entropy changes and show the total entropy change is the same for each path