

1. For each of the following parts, state whether there exists an ideal gas process that satisfies the conditions given. If so, describe the process and give an example from class if possible. If not, explain why such a process does not exist.
  - (a) There is heat transfer, but the temperature of the gas does not change ( $Q \neq 0$ ,  $\Delta T = 0$ ).
  - (b) There is no heat transfer, but the temperature of the gas changes ( $Q = 0$ ,  $\Delta T \neq 0$ ).
  - (c) There is no heat transfer, but the work is done on the gas ( $Q = 0$ ,  $W \neq 0$ ).
  - (d) There is no work done on the gas, but there is heat transfer ( $Q \neq 0$ ,  $W = 0$ ).