RECAP

- QUASISTATIC PROCESSES
- 1ST LAW OF THERMODYNAMICS

FOR A SYSTEM UNDERGOING A FINITE PROCESS FROM $i \longrightarrow f$

$$\Delta E = E_f - E_i = W + Q$$

ΔE – CHANGE OF INTERNAL ENERGY

W – WORK DONE ON SYSTEM

Q – HEAT ADDED TO SYSTEM

FOR A SYSTEM UNDERGOING AN

INFINITESIMAL CHANGE

$$dE = dW + dQ$$

dE – INFINITESIMAL CHANGE OF INTERNAL ENERGY

dW – INFINITESIMAL AMOUNT OF WORK DONE ON SYSEM

dQ – INFINITESIMAL AMOUNT OF HEAT ADDED TO SYSEM

FOR A QUASISTATIC PROCESS:

$$dW = -pdV$$

MEANING OF d AND $đ$

d — A MATHEMATICAL OPERATION, THE DIFFERENTIAL. INDICATES AN INFINITESIMAL CHANGE.

dE — AN EXACT DIFFERENTIAL

$đ$ — AN INFINITESIMAL AMOUNT OF SOMETHING

$đW$, $đQ$ — INEXACT DIFFERENTIALS

Some properties of d

For any functions f, g, h

and any constant c

$$f = gh \implies df = dg\,h + g\,dh$$

$$f = g + h \implies df = dg + dh$$

$$f = cg \implies df = c\,dg$$

$$dc = 0$$