W4-4-1 Total differential: Energy representation 1

Provide the total differential of the fundamental relation of the internal energy u as function of the entropy, s and the volume, v, so $u = u(s, v)$. Such a description of a thermodynamic system through u is called the energy representation.

$du = \left(\frac{\partial u}{\partial s}\right)_v ds + \left(\frac{\partial u}{\partial v}\right)_s dv$