Answer on Question #82003, Chemistry / General Chemistry

What is the change in internal energy of a system (ΔU) if 5.15 kJ of heat energy is absorbed by the system and 2844 J of work is done on the system (by the surroundings) for a certain process?
Express your final answer in kJ.

Solution

According to the first law of thermodynamics: the change in the internal energy ΔU of a closed system is equal to the amount of heat Q supplied to the system, plus the amount of work W done on the system by its surroundings.

$\Delta U = Q + W$

$\Delta U = 5.15 + 2.844 =$ **7.994 kJ**

Answer

7.994 kJ is the change in internal energy of a system.