Answer on Question # 62541 – Chemistry – General Chemistry

Suppose a system receives a “deposit” of 55 J of work from the surroundings and loses a “withdrawal” of 79 J of heat to the surroundings. What is the magnitude and the sign of ΔE for this process?

Solution:

Energy change in this process is as follows:

$$\Delta E = E_{received} - E_{lost} = 55 - 79 = -24 \text{ [J]}.$$

Therefore, the magnitude of ΔE is $|\Delta E| = 24$ [J], and its sign is negative (the energy of the system has decreased in this process).

Answer: $\Delta E = -24$ [J].