FIRST LAW OF THERMODYNAMICS

This is also called the law of conservation of energy.

This states that energy can neither be created nor destroyed but can be converted from one form to another.

[change in amount of energy contained within a system during some time interval] = [net amount of energy transferred in across the system boundary by heat transfer during the time interval] – [net amount of energy transferred out across the system boundary by work during the time interval]

Mathematically,

This equation can be said to be the energy balance equation. This shows that the first law of thermodynamics accounts for the energy balance.

In the differential form,

The instantaneous time rate form is

This can be written as

At steady state,

When solving questions, to find ,find by solving