

Zeroth Law of Thermodynamics

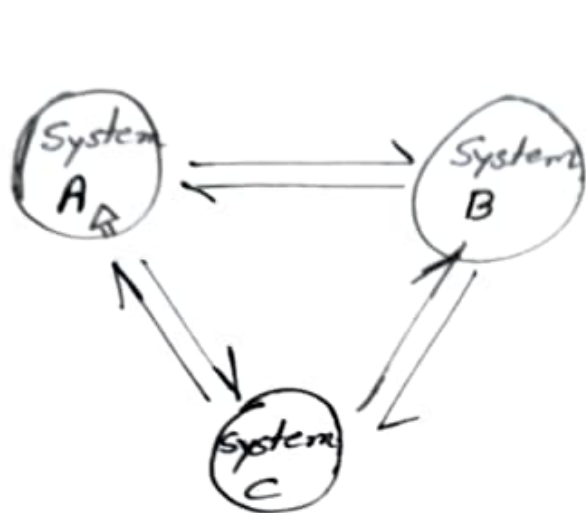
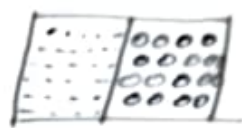


Fig:-1.



Thermal -
Equilibrium
(no heat flow)

Fig:-2.

zeroth law of thermodynamics

According to this law, two systems in thermal equilibrium with a third system separately, are also in thermal equilibrium with each other. i.e. If two systems A & B are in thermal equilibrium with the third system C separately, then both the systems A & B will also be in thermal equilibrium with each other.

If $\text{Temp. A} = \text{Temp. C}$ — ①

$\text{Temp. C} = \text{Temp. B}$ — ②

then $\text{Temp. A} = \text{Temp. B} \rightarrow \text{thermal equilibrium}$

P.T.O $\rightarrow$

In another words we can say that
"If ~~the~~ temp. of system A & B is equal
to temp of system C, then temp. of
A & B will also be equal." $\rightarrow$ zeroth
law of thermodynamics.

The name 'zeroth law was
invented by Ralph H. Fowler in the
1930s, long after First, second & third
laws were widely recognized. Then the
scientists realized that one more law is
required to complete the set. However the
zeroth law is the formal definition of
temperature and it is considered as a
more fundamental law when compared
to the other three laws that is why it
is known as zeroth law of thermodynamics.
* The zeroth law of thermodynamics is
the working principle of a thermometer.

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