

Difference Between Electric Potential and Potential Difference

The difference between electric potential and potential difference is that electric potential is the amount of effort done in transporting a unit positive charge from infinity to that point against electric forces in an electric field. On the other hand, a potential difference is the amount of work done in transporting a unit positive charge from one location to another point against the electric force between two points in an electric field.

Electric Potential is a key term in the field of electricity, as it requires a potential difference to initiate the movement of electrons and therefore produce electricity.

Difference Between Electric Potential and Potential Difference

The electric potential at a place in an electric field equals the amount of work required to bring a unit positive charge from infinity to that point. While the work involved in transporting a unit positive charge from one spot to another while maintaining charge equilibrium is known as potential difference. It is an important topic in the GATE EE syllabus. Here, we have provided the difference between electric potential and potential difference listed in the table below.

Key Difference Between Electric Potential and Potential Difference

Electric Potential	Potential Difference
Electric potential is the work done per unit charge to get a charge from infinity to a point in an electric field,	Potential difference is the potential created when transferring a charge from one point in the field to another.
It is defined at a point.	It is defined between two points.
The unit of Electric Potential is Volt.	The unit of Potential Difference is also Volt.

At infinity, it is taken as zero.	There is no such concept for potential difference.
It is a scalar quantity.	It is also a scalar quantity.

What is Electric Potential?

Electric Potential is the amount of work done per unit charge to get that charge from infinity to a point in the electrostatic field while resisting the field force. Voltage is another term for electric potential. Volt is the SI unit for Electric Potential. Electric potential is a scalar quantity. The formula for Electric Potential is-

$$\text{Electric Potential} = \text{Work Done} / \text{Unit charge}$$

Since work is measured in joules and charge is measured in coulombs, the unit of electric potential is joules/coulomb or volts.

What is Potential Difference?

The amount of work required to transfer a unit charge from one place in an electric field to another is defined as the potential difference. In other terms, the potential difference is the difference between the two charged bodies' electric potentials.

The two bodies are said to have a potential difference when one of them is charged to a different electric potential than the other. Both bodies are under duress and are striving to reach their full capacity. The unit of potential difference is volt.

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