

## Answer on Question #51282, Physics, Mechanics | Kinematics | Dynamics

Physical quantities such as length, mass, time and temperature are referred to as

- vector quantities
- fundamental quantities
- scalar quantities
- derived quantities

Explanation:

In order to correct answer on the given question we need to analyze each quantities, their main characteristics.

Length is the measure for distance measurement. It characterizes the extent in space. In order to measure distances and relatively small size of bodies use a tape measure or ruler. If the measured volumes are small and require more precision, the measurements are made with a micrometer. When we have deal with measuring a long distances using different methods: triangulation or radar. For example, the distance to the moon or any star is measured by triangulation.

Time is a measure of the different periods of time. This is measure of the speed with which there is any change happening, i.e. measure of the speed of events. The basis of measurement of time put periodic, recurring cyclical processes.

If the length and time are the fundamental characteristics of time and space, the mass is a fundamental characteristic of the substance. Mass has all the body: solid, liquid, gaseous; different size.

Temperature is a measurement of the average kinetic energy of the molecules in an object or system and can be measured with a thermometer or a calorimeter. It is a means of determining the internal energy contained within the system. Temperature expressed in terms of units or degrees designated on a standard scale.

Scalars are quantities that are fully described by a magnitude (or numerical value) alone. Scalar quantity in physics is the value of each value can be expressed in one real number. That is, the scalar value is determined only by its value, unlike a vector which has a value other than the direction.

Vectors are quantities that are fully described by both a magnitude and a direction.

The physical quantities may be fundamental and derived. Length, mass and time are the fundamental quantities, they can be measured directly.

Thus based on the noted above information we can conclude that Length, mass and time are the fundamental quantities. Finally we can note that they are also scalar quantities.