**PHYSICS 11**

**Physical Quantities**

The word “quantity” can mean two different things:

1. A quantity is something that can be quantified/measured – meaning that it can be assigned numbers to it to express of how much of it there is.
2. A physical quantity is a physical property that can be expressed in numbers.

Definition: **A (physical)Quantity** is a physical property or quality or a way of being that can be quantified (measured) without changing the object on a chemical or an atomic level

* Physical quantities are either **intensive** or **extensive.**

**Intensive physical quantity**

* Its magnitude is independent of the size of the system or sample
* Examples: temperature, density, resistivity, …

**Extensive physical quantity**

* Its magnitude is dependent on the amount of the material/matter present in the system or sample
* Examples: mass, volume, …
* Physical quantities are either **base** or **derived.**
* Examples of base quantities: length, time, mass, charge, …
* Examples of derived quantities: Force, acceleration, speed, energy, current,…
* Physical quantities are either **scalar** or **vector.**
* Examples of scalar quantities: distance, time, mass, speed, volume, temperature, work, potential energy, kinetic energy, resistance, …
* Examples of vector quantities: displacement, velocity, force, momentum, acceleration, impulse, torque,