

GENERAL SCIENCE

Class Notes

Covering Full Syllabus

❖ Contents :-

1. BIOLOGY

- Introduction
- Classification of Organisms.
- Cytology
- Genetics
- Structure of Plant and Animal Cell.
- Classification of Plant Kingdom.
- Plant Morphology
- Plant tissue
- Photosynthesis
- Plant Hormones
- Plant Diseases
- Mode of Nutrition in Plant.
- Control and Coordination in Plant
- Sexual Reproduction in Flowering Plant.
- Asexual Reproduction in Plants.
- Transport system in Plant.
- Respiration and Excretion in plants.
- The Cell: The foundation of all living things.
- Cell: Structure and Functions.
- Control and Coordination in Human.
- Human Reproductive system.
- Excretory system in Humans.
- Respiratory system in Humans.
- Human Circulatory system.
- The Heart.
- Composition of Blood.
- Functions of Blood.
- Human Digestive system.
- Cell Division

- Food and Nutrition.
- Human Diseases.
- Nuclear fission and nuclear fusion
- Classification of Animal Kingdom.
- The five kingdoms of life.
- Mode of Nutrition in Animal.
- Nutrition in Animal.
- Sexual Reproduction in Animal.
- Respiration in Animals.
- Miscellaneous.

2. PHYSICS

- Units & Dimensions
- Motion
- Work, Energy, and Power
- Gravitation
- Pressure
- Floatation
- Surface Tension
- Viscosity
- Elasticity
- Simple Harmonic Motion
- Wave
- Sound Wave
- Heat & Thermodynamics
- Light
- Static Electricity
- Current Electricity.
- Magnetism
- Atomic and Nuclear Physics
- Scientific Instruments.
- Inventions
- Radioactivity.
- Nuclear fission and fusion
- Electromagnetism
- The four fundamental forces
- The kinetic theory of matter
- Magnetic effect of electric current
- The Human eye and Defects.

3. CHEMISTRY

- Matter and its state
- Atomic Structure
- Chemical Bonding
- Periodic Classification of Element.
- Oxidation and Reduction
- Acids, Base, and Salts
- Behavior of Gases
- Electrolysis
- Carbon and its Compound
- Fuels
- Metallurgy
- Metals and Non-metals
- Chemical Reactions
- Radioactivity
- Electrochemistry
- Catalyst
- Hydrocarbons
- List of important Drugs and Chemicals
- Fertilizers
- Concepts of pH scale.

NBCampus

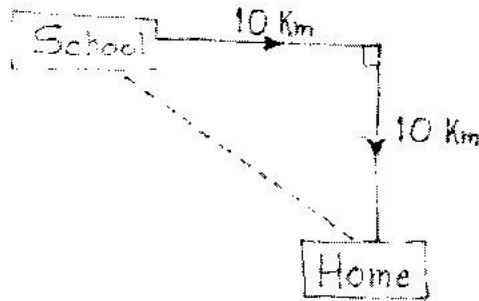
Physics

Motion

(i) Distance (x)

(ii) Displacement (s)

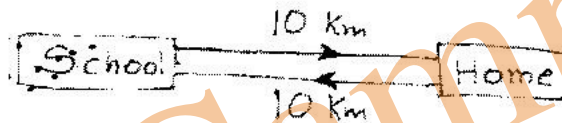
Case-I



$$x = 20 \text{ Km}$$

$$s = 10\sqrt{2} \text{ Km}$$

Case-II



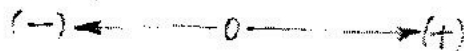
$$x = 10 + 10 = 20 \text{ Km}$$

$$s = (+10) + (-10) = 0 \text{ Km}$$

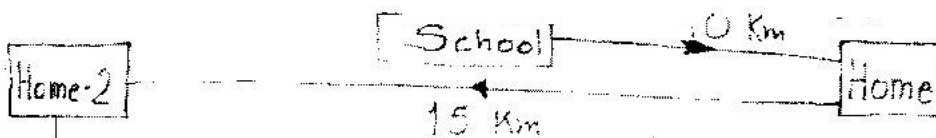
Assuming right side to be (+ve)

Assuming left side to be (-ve)

This assumption is known as 'frame of Reference'.



Case-III




$$x = 10 + 15 = 25 \text{ Km}$$

$$s = (+10) + (-15) = -5 \text{ Km}$$

Vectors: Quantities which represent opposite direction if signs get changed... from +ve to -ve.

Scalars: Usually, what is not a vector is a scalar.
'Frame of Reference' is valuable only for vectors.

(iii) Speed  (The value on speedometer)

(iv) Velocity =  + Direction

Speed
Scalar

Velocity
Vector

Direction of velocity is tangential to the motion.

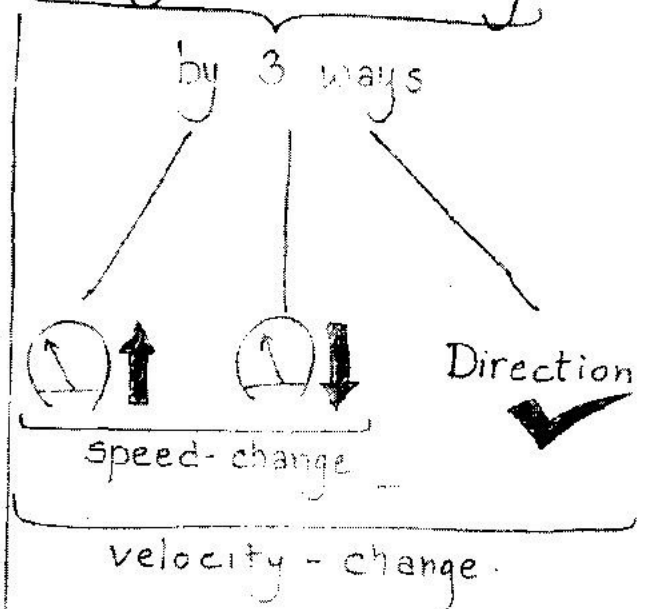
(v) Acceleration = Rate of change in velocity

Jeep 0 kmph to 60 kmph in 15s

Ferrari 0 kmph to 60 kmph in 3s

Change in velocity is same but rate is different

• In layman terms, acceleration is 'pickup' of a vehicle.

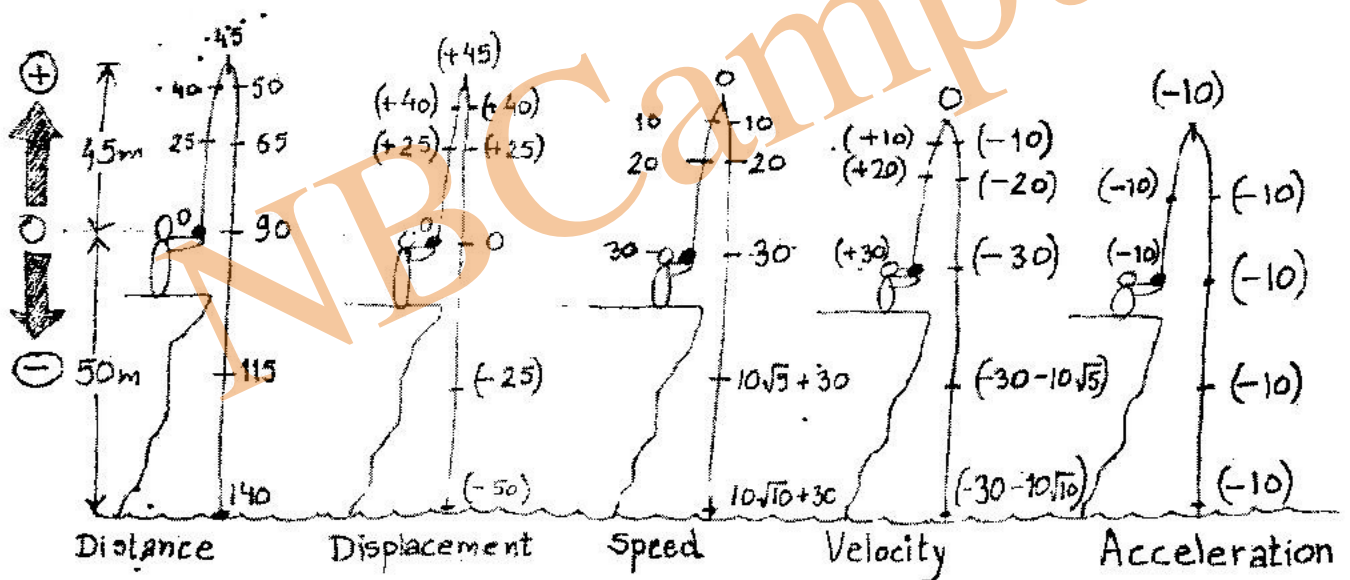


Direction of displacement tells, which side the object is.

Direction of velocity tells, which side the object is going.


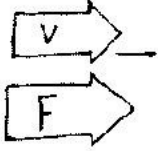


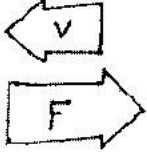





Direction of acceleration tells, which side the object is experiencing a force.

The direction of acceleration is always towards the applied force.



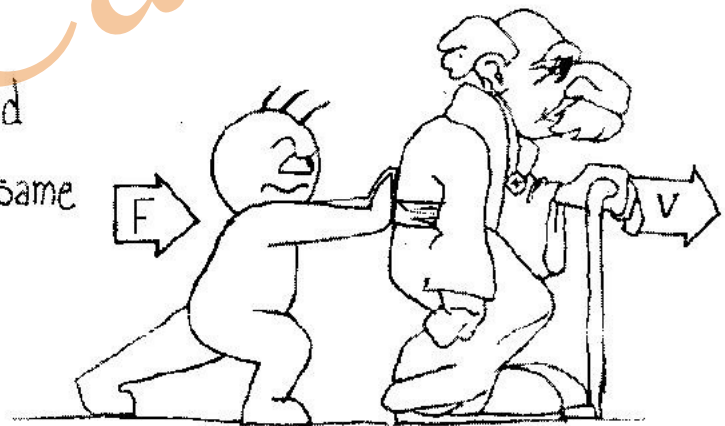
Distance is the value on odometer.
while speed is the value on speedometer.

The grand table

Case	Angle		Direction
	0°		
	180°		
	90°		

Case 1:

When 'velocity' and 'Force' are in the same direction



Important note: If a body moving in $+x$ direction starts going in $-x$ direction later, mathematically it is not referred as a direction change as the body is still on the same axis.
 Direction changes if axis changes, like x to y or z .