Kinematics

2011-12

DATE
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In kinematics, we study the relation b/w parameters of motion not the cause of motion.

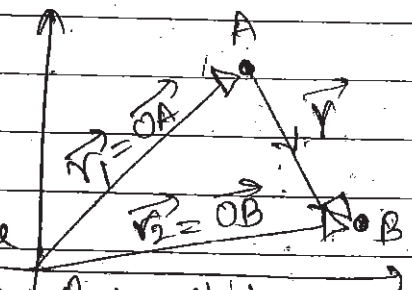
PARAMETERS

1- Position
2- Displacement
3- Distance
4- Average velocity
5- Inst. velocity
6- Avg. Speed
7- Inst. Speed
8- Acceleration

POSITION & DISPLACEMENT (vector)

→ Change in position vector is called displacement. It is directed along initial to final position.
→ Its magnitude is min. dist. b/w initial & final position
→ It is vector quantity.

किसी particle को exist करने के लिए Cartesian Plane जरूरी है।



Any particle requires Cartesian plane for its existance

Change = Δ = final - initial

$$\Delta\vec{r} = \vec{OB} - \vec{OA}$$

$$\vec{D} = \vec{AB} \quad (\because \vec{AB} = \vec{OB} - \vec{OA})$$

यह जरूरी नहीं होता है कि displacement वाली लाईन ही particle का path; → Its not necessary that displacement line is only the path followed by particle

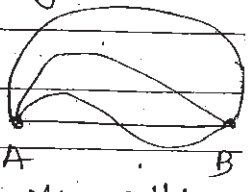
DISTANCE (scalar)

Length of path travelled is known as distance.

Distance b/w two points A & B can have many values. any value नहीं हो सकती है। Bcoz

$$\text{Distance} \geq |\text{Displacement}|$$

disp. से कम नहीं हो सकती है।
distance cant be less than displacement



Many paths Can be travelled