

Exam 1 topics

- Kinematics:

Review the definitions of the following quantities:

position \vec{r} ,

displacement $\vec{\Delta r}$,

average velocity $\vec{v}_{avg} = \frac{\vec{\Delta r}}{\Delta t}$, average speed = $\frac{\text{distance traveled}}{\text{time traveled}}$

instantaneous velocity $\vec{v} = \lim_{\Delta t \rightarrow 0} \frac{\vec{\Delta r}}{\Delta t}$, instantaneous speed = $|\vec{v}| = v$

average acceleration $\vec{a}_{avg} = \frac{\vec{\Delta v}}{\Delta t}$,

instantaneous acceleration $\vec{a} = \lim_{\Delta t \rightarrow 0} \frac{\vec{\Delta v}}{\Delta t}$.

Review the tutorials: velocity, representations of motion, vectors, and motion in 2D.

Review the problems covered in the class slides (and explained in the videos).

- Dynamics:

Concepts: force, free body diagram, Newton's laws

Review the tutorials: Forces, Newton's 2nd and 3rd laws

Good luck and study well!