Physics Lecture

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1 Introduction

1.1 How to pass

There will be a remote exam, more info nearing the end of the semester.

1.2 Curriculum

1. Kinematics
2. Dynamics
3. Quantum

2 Some math

$f'(t) = \frac{df(t)}{dt} = \lim_{\Delta t \to 0} \frac{f(t+\Delta t) - f(t)}{\Delta t}$
Velocity is a derivative of the position vector.
Acceleration is a derivative of the velocity vector as well as the second derivative of the position vector.

3 Vector Operations

1. Dot product / Scalar product
   $A \cdot B = |A||B|cos(\alpha)$
   $A \cdot B = a_x * b_x + a_y * b_y + a_z * b_z$
   $A \cdot A = |A||B|cos(0) = |A|^2$
2. Vector Scaling
   $kA = (kx_a, ky_a, kz_a)$