WEEK 1: Motion in Physics
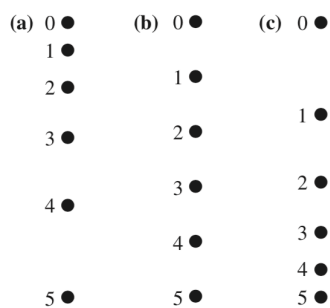
SI LEADER: Stephen Iota (siota001@ucr.edu)
COURSE: Physics 40A (Winter 2019), Prof. John Ellison
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1 Kinematic Equations

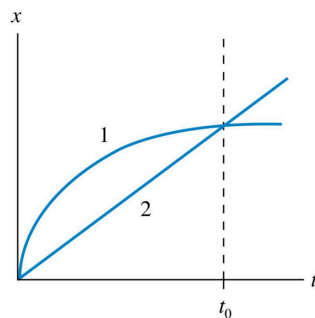Write down the five kinematic equations. Identify which two are the fundamental equations.

2 Motion Diagrams

Three motion diagrams are shown. Draw an acceleration vs time and a velocity vs time graph for each.

3 Velocity Diagram

Indicate on the graph where objects 1 and 2 have the same velocity.

4 Stopping at a Red Light

A motorist is traveling at 20 m/s. He is 60 m from a stoplight when he sees it turn yellow. His reaction time, before stepping on the brake, is 0.50 sec. What steady deceleration while braking will bring him to a stop at the red light?

5 Logarithmic Acceleration

A car accelerates logarithmically ($\vec{a}(t) = \ln t \; \hat{x}$). Solve for position as a function of time $x(t)$.