Uniform Acceleration Particle Model

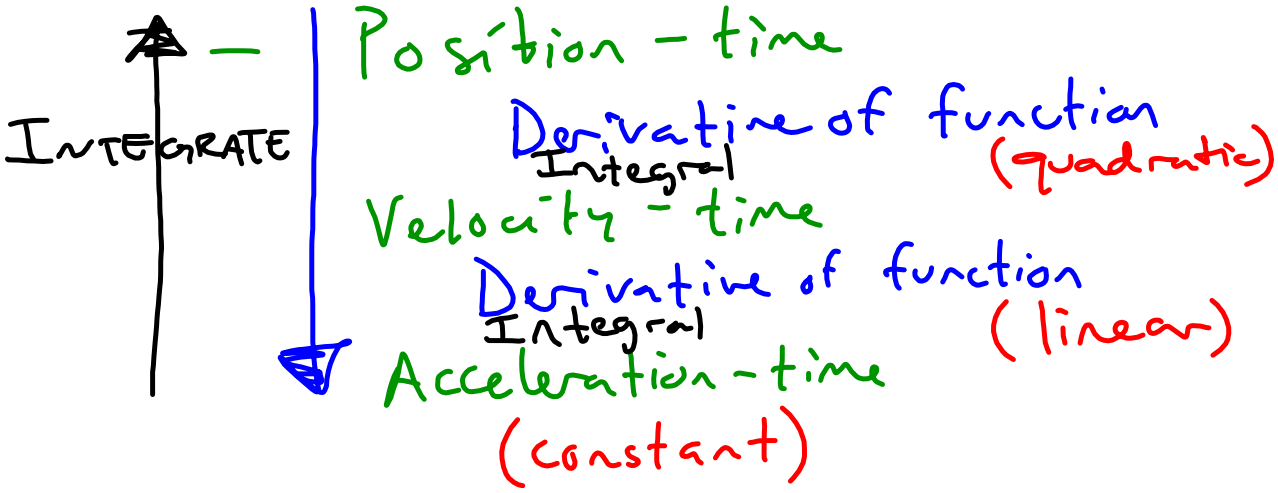
- Description:

  Particle moving with uniform acceleration

- Properties:
  - Measured:
    - Position
    - Time
  - Calculated:
    - Velocity
    - Acceleration

- Representations:
  - Graphical
    - velocity - time slope = a
    - position - (time)^2
      - slope = $\frac{1}{2}a$
    - position - time
    - acceleration - time
    - (velocity)^2 - position
  - Diagrammatic
    - Motion Map
- Mathematically
  - $\bar{a} \equiv \frac{\Delta \bar{v}}{\Delta t}$
  - Kinematics equations
- Written/Verbal Description

- Rules of Behavior:



$$v_f^2 = v_i^2 + 2a\Delta x$$

$$v_f^2 - v_i^2 = 2a\Delta x$$

$$a = \frac{v_f^2 - v_i^2}{2\Delta x} = \frac{1}{2}\frac{\Delta v^2}{\Delta x}$$