



# Bao's Physics Blog

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## Rotational Motion Important & Notable Questions

 12: Electric Charge

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### Notations & Side notes

#### 1. Dot vs Cross Signs for Vectors



**This symbol denotes the the movement of charges, or a vector force, directly out of the page.**



**This symbol denotes the the movement of charges, or a vector force, directly into the page**

#### 2. Translational = Straight line

Rotational = Rotate

#### 3. Rotational Kinematics Note:

- Direction of Torque, Angular Velocity, Angular Acceleration

—> **Direction of Angular Velocity** is perpendicular (Vertical in most cases) to the rotating plane

—> **Direction of Angular Acceleration** is also perpendicular to the plane

—> **Direction of Torque** is also perpendicular to the plane

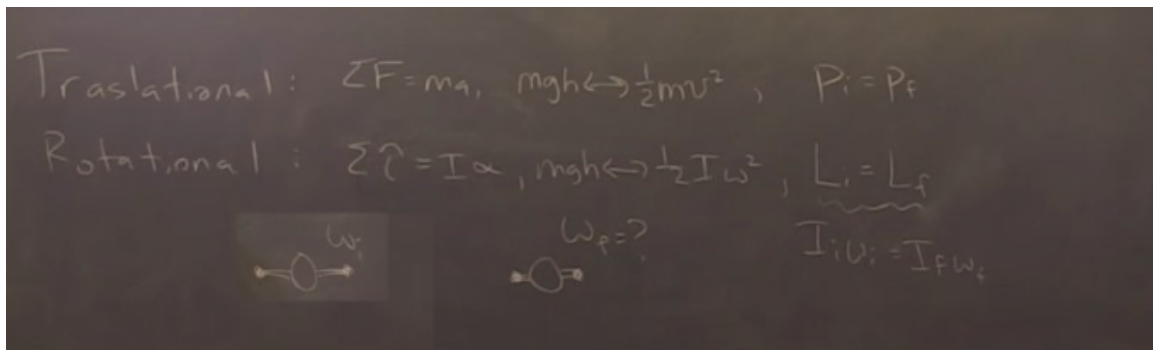
—> **Direction of Rotation, Tangential Acceleration & Translational Velocity** can be determined using the **Right Hand Rule on Torque, Angular Acceleration, Angular Velocity, and Angular Momentum**

- **TRANSLATION MOTION vs ROTATIONAL MOTION**

—> while Translational (linear) Momentum is mass\* linear velocity, Angular momentum is rotational inertia \* angular velocity

—> Equivalence of Mass in Translational Motion is Moment of Inertia in Rotational Motion

—> Equivalence of Force in Translational Motion is Torque in Rotational Motion —> Both are vectors.



- **Displacement Can also be Translated (Translational Displacement = Arc length =  $r * \text{Angular Displacement}$ ) →  $\Delta x = r * \Delta \theta$**

Physics C notes