Chapter 7

Centripetal acceleration and Torque

Torque

- Torque is the quantity that measures the ability of a force to rotate an object around some axis. Units - Nm
- Lever arm is the distance from the center of rotation.
- Torque depends on Force and the length of the lever arm.
- Torque = Force x distance (lever arm)


INCH POUNDS

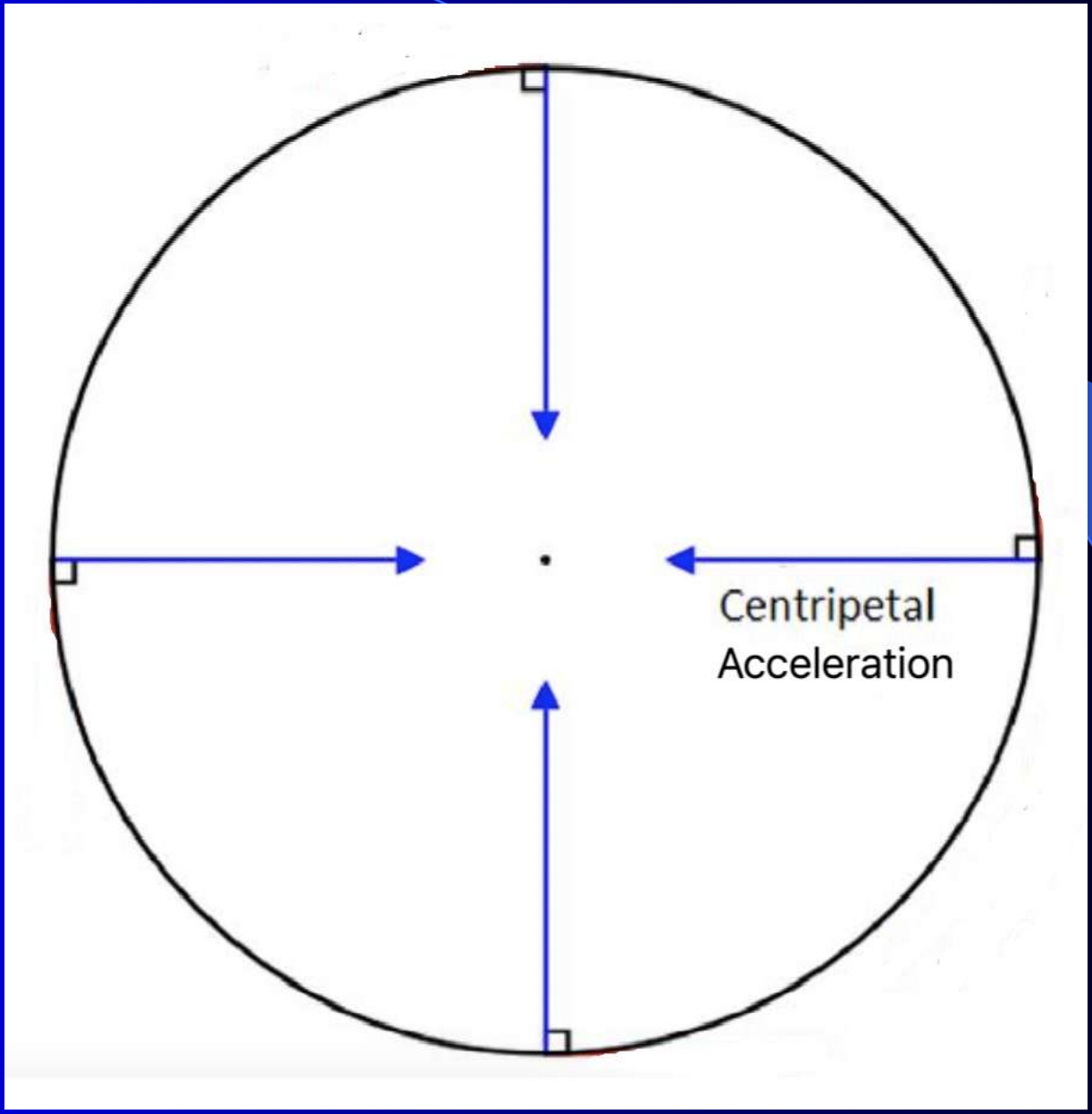
Practice 8A

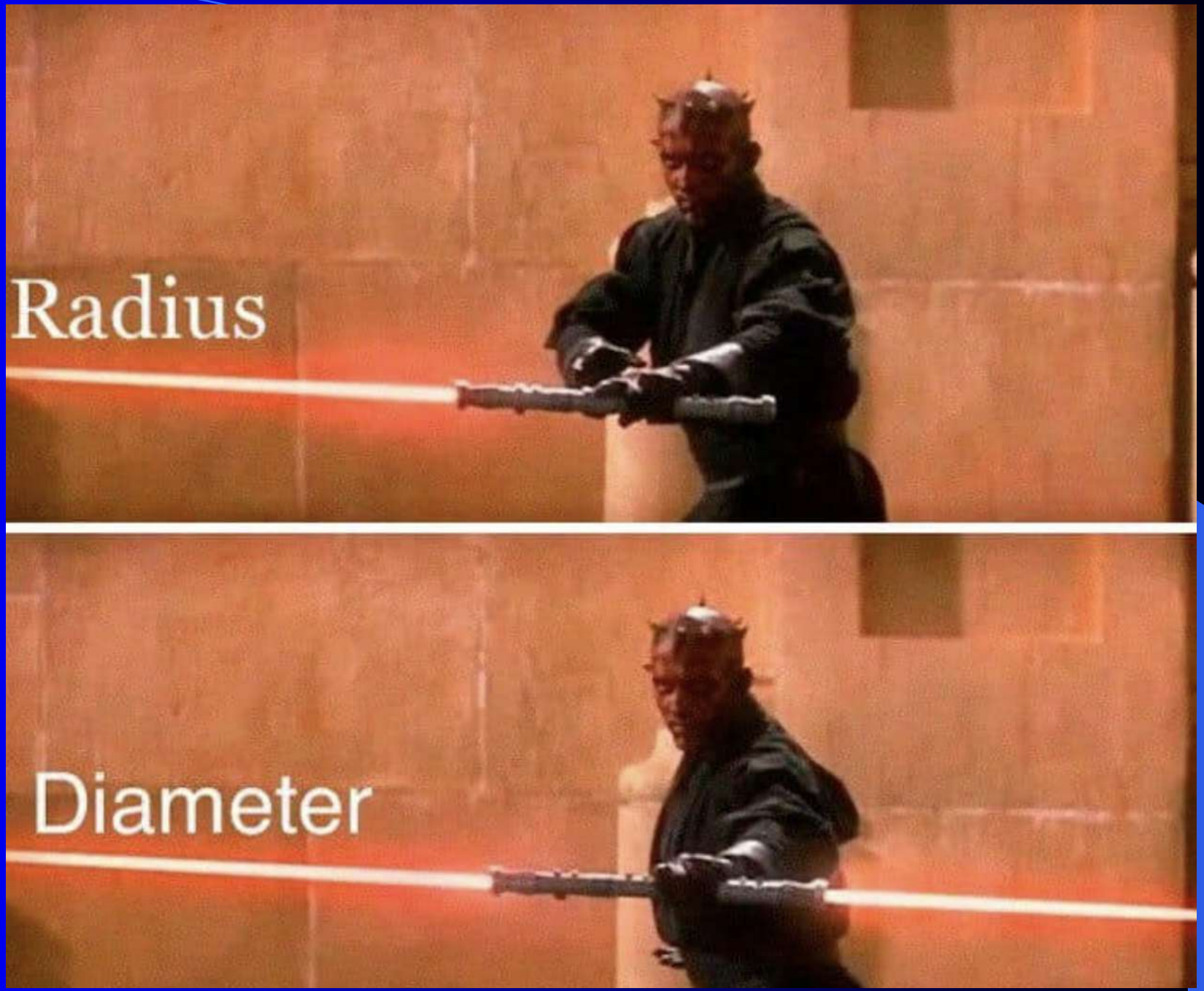
- #1. Find the torque produced by a 3 N force applied to a door at a perpendicular distance of .25 m from the hinge.
- Known?
- Unknown?
- Equation?

Centripetal Acceleration

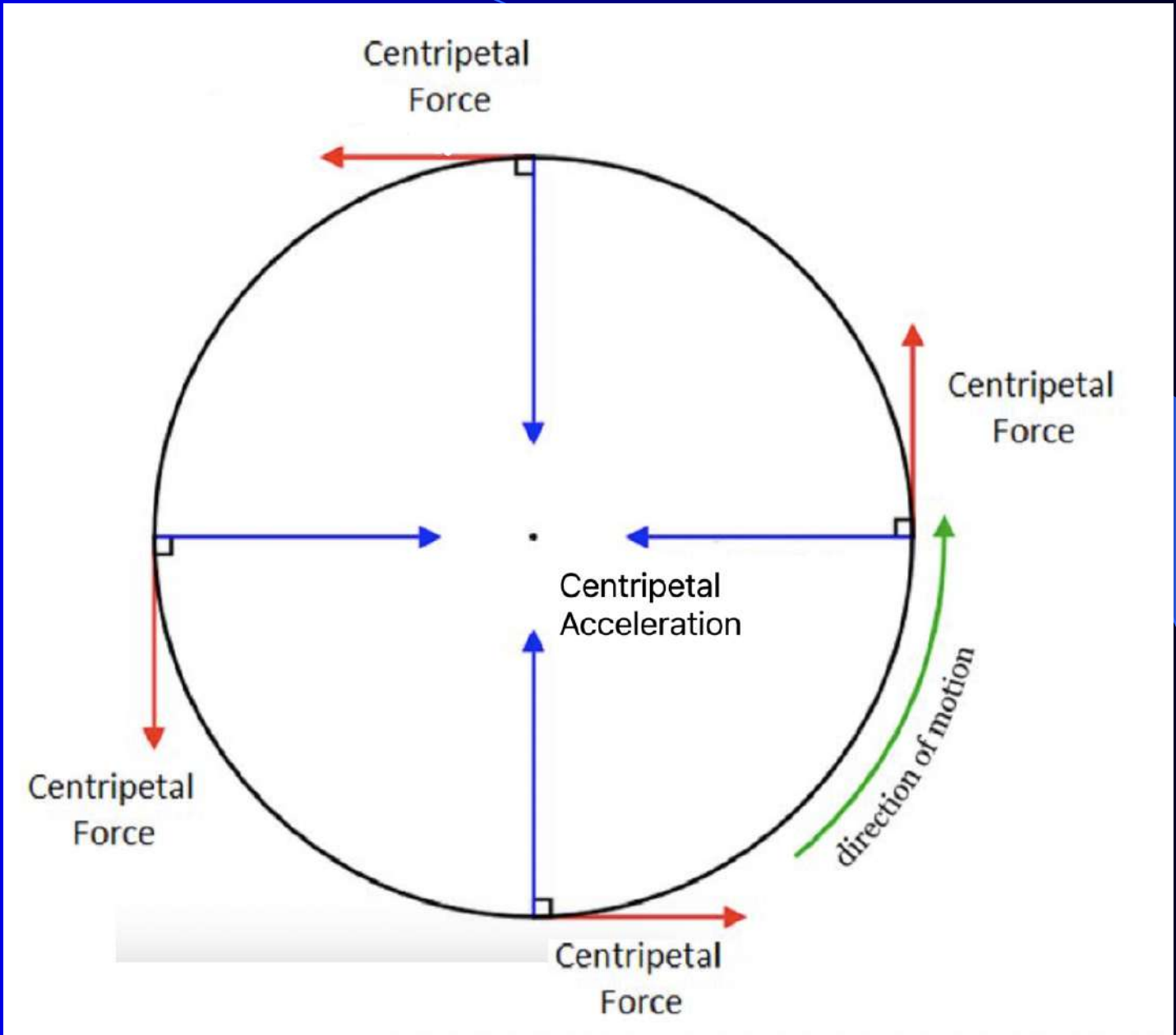
- Acceleration that is directed toward the **center** of a circular path is called centripetal acceleration.
- $a_c = V_t^2/r$
- $a_c = r\omega^2$

Centripetal Acceleration




Radius
Diameter

Centripetal Force



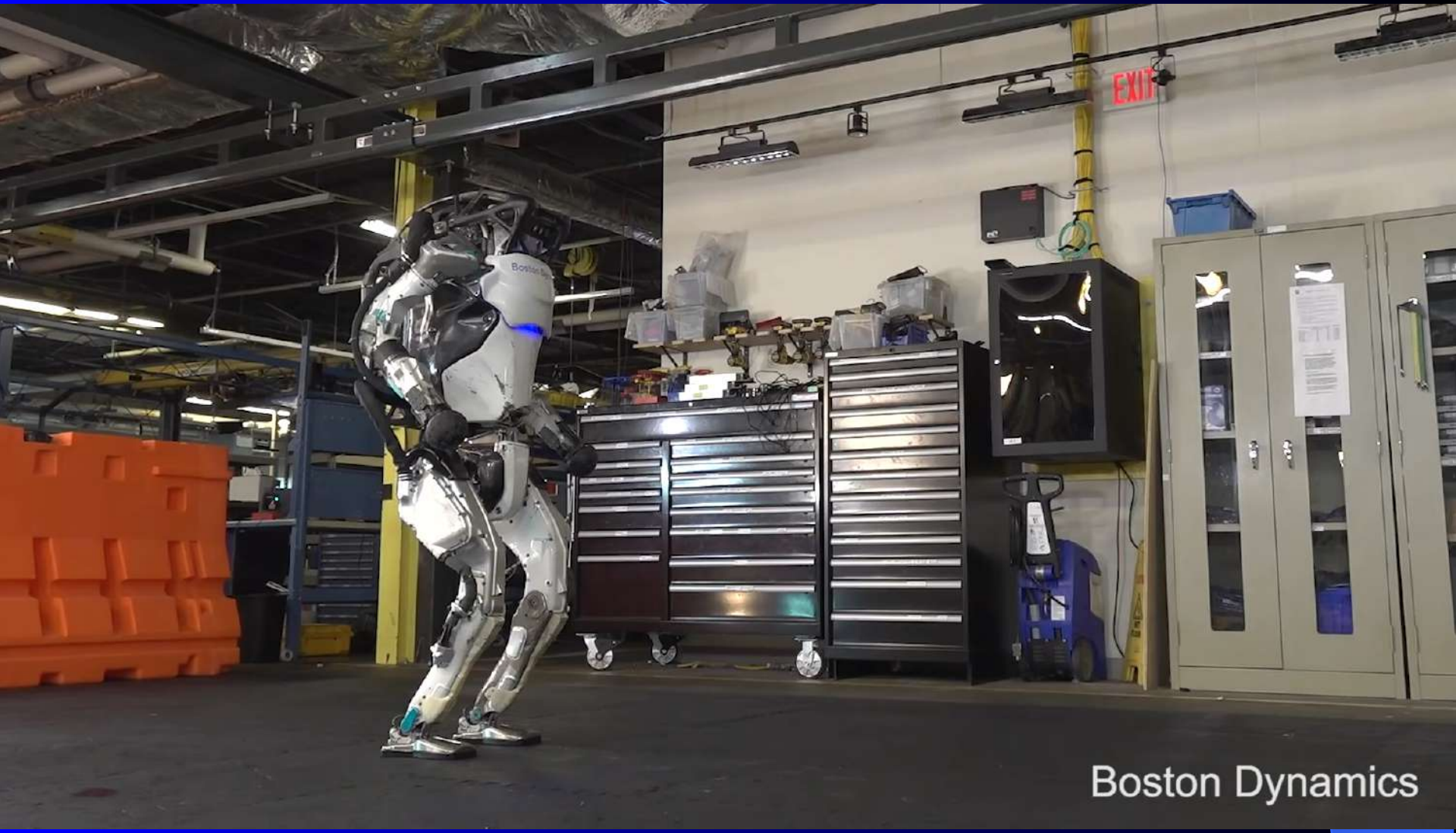
Outward spinning toys

Sparkler Demo

Inner Ear

Water Spin Demo

Beyblade – Which one usually wins?


EXIT
Boston Dynamics

Gyroscopes

Tops Demos

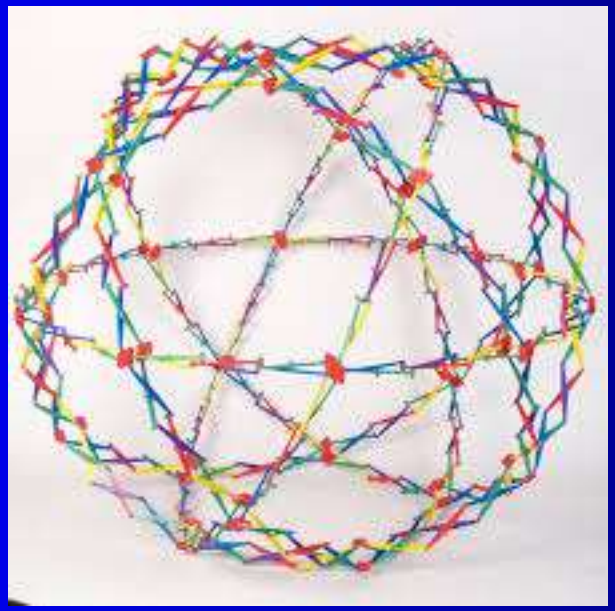
Feeling Centripetal Force Demos

Fire Tornado

Angular Illusions Toys

Centrifuge

Hoberman Sphere and ball



Misc Toys

Conservation of Angular Momentum

- Angular momentum is conserved
- $F_c = (mv_t^2)/r$
- $F_c = mr\omega^2$

- Demo


JAXA