29:006 Exam 1 Formulas and Constants

- acceleration due to gravity on the earth = \( g = 10 \text{ m/s}^2 \)
- Force \( F = \text{mass} \times \text{acceleration} = m \times a \)
- present velocity = initial velocity + acceleration \times time
  
  \[ = \text{initial velocity} + a \times t \]
- time for a ball thrown up with velocity \( v_{\text{up}} \) to reach maximum height = \( v_{\text{up}} / g \)
- weight = mass \times g = m \times g
- centripetal acceleration = (velocity)\(^2\) / radius = \( v^2 / R \)
- Momentum = mass \times velocity = m \times v
- Torque = force \times lever arm = F \times L
- rotational momentum
  
  = moment of inertia \times rotational velocity