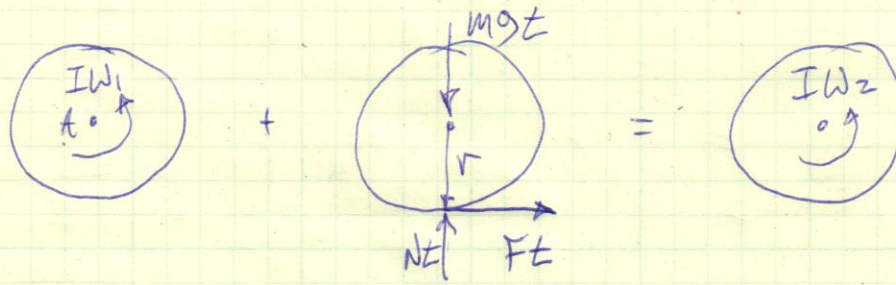


17-57

 $\omega_1 = 0$ ,  $\omega_2 = \text{CONSTANT}$  : FIND  $t$ ANGULAR MOMENTUM ABOUT A  $\uparrow$ :

$$I\omega_1 + Ft \cdot r = I\omega_2$$

$$t = \frac{I\omega_2}{Fr}$$

$$I = \frac{1}{2}mr^2$$

$$v = r\omega, \quad \omega_2 = \frac{v}{r}$$

$$F = \mu N = \mu mg$$

$$t = \frac{(\frac{1}{2}mr^2)(\frac{v}{r})}{(\mu mg)r}$$

$$t = \frac{v}{2\mu g}$$