

Name:

Quiz (8)-Sec (9)-Ch(11&12)

S.N:

ID :

Key

Phys 101 (Term 041)-(F. Enaya)

Show your steps clearly for full credit!!

Q1. A uniform wheel of radius 0.5 m rolls without slipping on a horizontal surface. Starting from rest, the wheel moves with constant angular acceleration 6.0 rad/s^2 . Find the distance traveled by the center of mass of the wheel from $t = 0$ to $t = 3 \text{ s}$.

$$\mathbf{a}_{\text{com}} = R \alpha = (0.5) (6) = 3 \text{ m/s}^2.$$

$$\mathbf{V}_o = 0$$

$$\Rightarrow \Delta \mathbf{x} = \mathbf{S} = \mathbf{V}_o t + \frac{1}{2} \mathbf{a}_{\text{com}} t^2 \Rightarrow \mathbf{S} = 0 + \frac{1}{2} (3) (3)^2$$

$$\mathbf{S} = 13.5 \text{ m}$$