

Ex 7.3 p.191

$\omega_i = 0$   
 $\omega_f = 31.4 \frac{\text{rad}}{\text{s}}$   
 $t = .892 \text{ s}$

$\omega \frac{\text{rad}}{\text{s}}$   
 $\alpha \frac{\text{rad}}{\text{s}^2}$

$\theta = \frac{s}{r}$  arc length<sup>m</sup>  
 radius<sup>m</sup>  
 (radians)

a)  $\alpha = ?$

$\alpha = \frac{\omega_f - \omega_i}{t} = \frac{31.4 - 0}{.892}$   
 $= 35.2 \frac{\text{rad}}{\text{s}^2}$

$\omega_f = \omega_i + \alpha t$   
 $\theta = \omega_i t + \frac{1}{2} \alpha t^2$   
 $\omega_f^2 = \omega_i^2 + 2\alpha\theta$

$v_f = v_i + at$   
 $d = v_i t + \frac{1}{2} at^2$   
 $v_f^2 = v_i^2 + 2ad$

b) rev = ?

$\theta = \omega_i t + \frac{1}{2} \alpha t^2$  rad  $\rightarrow$  rev  
 $= \frac{1}{2} (35.2) (.892)^2$   
 $= 14 \text{ rad} \left| \frac{1 \text{ rev}}{2\pi \text{ rad}} \right. = 2.23 \text{ rev}$

$\theta = ?$

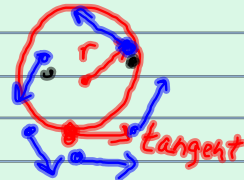
c)  $v_t = ?$  if  $r = 4.45 \text{ cm}$

$v_t = r\omega = .0445 (31.4) = 1.4 \frac{\text{m}}{\text{s}}$

d)  $a_t = ?$

$a_t = r\alpha$   
 $= .0445 (35.2)$   
 $= 1.57 \frac{\text{m}}{\text{s}^2}$

$v_t = r\omega$   
 $a_t = r\alpha$   
 tangential (at a pt. on curve)



use Ch2 form  
 7) - Find  $d$  in m  
 -  $d$  in m is arc length  
 - next find  $\theta = 36.5 \text{ rev}$

$d = v_i t + \frac{1}{2} at^2$   
 $\theta = \frac{s}{r}$  in m

$\theta \rightarrow v_t \rightarrow \omega \quad 30 \frac{\text{rad}}{\text{s}}$