Ex 7.5 p195

$v_t = 10 \frac{m}{s}$ alpha $\alpha$

$r = 50 m$

$a_c = ?$ omega $\omega = ?$

a) $a_c = \frac{v_t^2}{r} = \frac{10^2}{50} = 2 \frac{m}{s^2}$ toward center

b) $v_t = r\omega$

$\omega = \frac{v_t}{r} = \frac{10}{50} = 0.2 \frac{rad}{s}$

$\omega_f = \omega_i + \alpha t$ ☺

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

$\omega_f^2 = \omega_i^2 + 2\alpha\theta$ ☺

$v_t = r\omega$ ☺

$a_t = r\alpha$ ☺

| | |
|---|---|
| $v_t$ | $\frac{m}{s}$ |
| $\omega$ | $\frac{rad}{s}$ |
| $a_t, a_c$ | $\frac{m}{s^2}$ |
| $\alpha$ | $\frac{rad}{s^2}$ |
| $F_c$ | N |
| $\theta$ | rad |
| $s$ | m |
| $r$ | m |

centripetal motion

$a_c = \frac{v_t^2}{r} = r\omega^2$ ☺ pts to center

$F_c = ma_c = \frac{mv_t^2}{r}$ ☺

if constant ~~magnitude~~ speed but changing dir then vel is changing + acc

Vector - magnitude & direction

constant v, direction is changing you have acceler.

Vector – magn + dir

#18) a) $v_t = 14.1 \frac{m}{s}$ $a_c = 0.5 \frac{m}{s^2}$

* set $a_c = a_t$

b) 198.8 m, c) 28.2 s

20) find $\omega$

if $F_c = mr\omega^2$ 150.1 $\frac{rev}{s}$

then $\frac{rad}{s} \rightarrow \frac{rev}{s}$

$\frac{rad}{s} \cdot \frac{1\ rev}{(2\pi)\ rad}$

use Ch 7 first page of notes w/ ALL formulas