



Kelompok 4 Me...

Indah🐝 is typing...



Winda humanbobrok🐝

Assalamualaikum gaiss

Gmn nihh, mulai diskusi mekanika yuuk 22:40

Indah🐝

Wa'alaikumsalam fren, oiyaa yukkk bolee bolee

22:40

wa'alaikumussalam warohmatullohi wabarokatuh
kuyy gaskeunnn 22:40 ✓✓

Winda humanbobrok🐝

Kan ada 7 soal nii, 5.1-5.7 kita bagi aja yaa.. kalian
mau yg mana?? 22:42

boleeeh, aku 5.1 sama 5.2 yaaaa 22:42 ✓✓

Indah🐝

dibagii ajaa aku ngikuttt 22:42

Winda humanbobrok🐝

Ya udah ndah km 5.3-5.7 trs nanti aku yg nyalen aja



22:43

Hahahhaha nggk nggk 22:43

Km 5.3-5.4 ya 22:44

Indah🐝

solimaahhhh 22:44

Indah🐝

Winda humanbobrok🐝

Km 5.3-5.4 ya

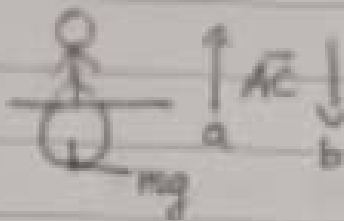
Okee okeee 22:44



Message



5.1 a)



$$\vec{N} + m\vec{g} - m\vec{A}_0 = 0$$

$$N - mg - m A_0 = N - mg - m \frac{g}{4} = 0$$

$$N - \frac{5}{4}mg = 0$$

$$W' = N = \frac{5}{4}mg = \frac{5}{4}W$$

$$W' = 15016$$

$$b) N - mg + m\left(\frac{g}{4}\right) = 0$$

$$W' = W - \frac{W}{4} = \frac{3}{4}W$$

$$W' = 9009$$

$$5.2 a) \vec{F}_{cent} = -m\vec{\omega} \times (\vec{\omega} \times \vec{r})$$

$$\text{Untuk } \vec{\omega} \perp \vec{r} \rightarrow F_{cent} = m\omega^2 r \hat{e}_r$$

$$\omega = 100 \text{ s}^{-1} = 1000 \pi \text{ s}^{-1}$$

$$F_{cent} = 10^{-6} \times (1000 \pi)^2 \times r \hat{e}_r = 5N$$

$$b) \frac{F_{cent}}{F_g} = \frac{m\omega^2 r}{mg}$$

$$= \frac{(1000 \pi)^2 r}{980} = 5.04 \times 10^4$$

inii gais untuk nomor 5.1 sama 5.2

5.7.

$$d) \begin{aligned} \vec{s}(t) &= R_a \cos \omega t \hat{a} \\ &\quad R_a \sin \omega t \hat{e} \end{aligned}$$

$$\begin{aligned} \vec{e}(t) &= R_e \cos \omega t \hat{a} \\ &\quad R_e \sin \omega t \hat{e} \end{aligned}$$

$$\frac{\vec{e}}{a} = \frac{\vec{s}}{a} - \frac{\vec{s}}{e}$$

$$\frac{\vec{e}}{a}(t) = \frac{R_a \cos \omega t \hat{a} - R_e \cos \omega t \hat{a}}{R_a \sin \omega t \hat{a} - R_e \sin \omega t \hat{e}}$$

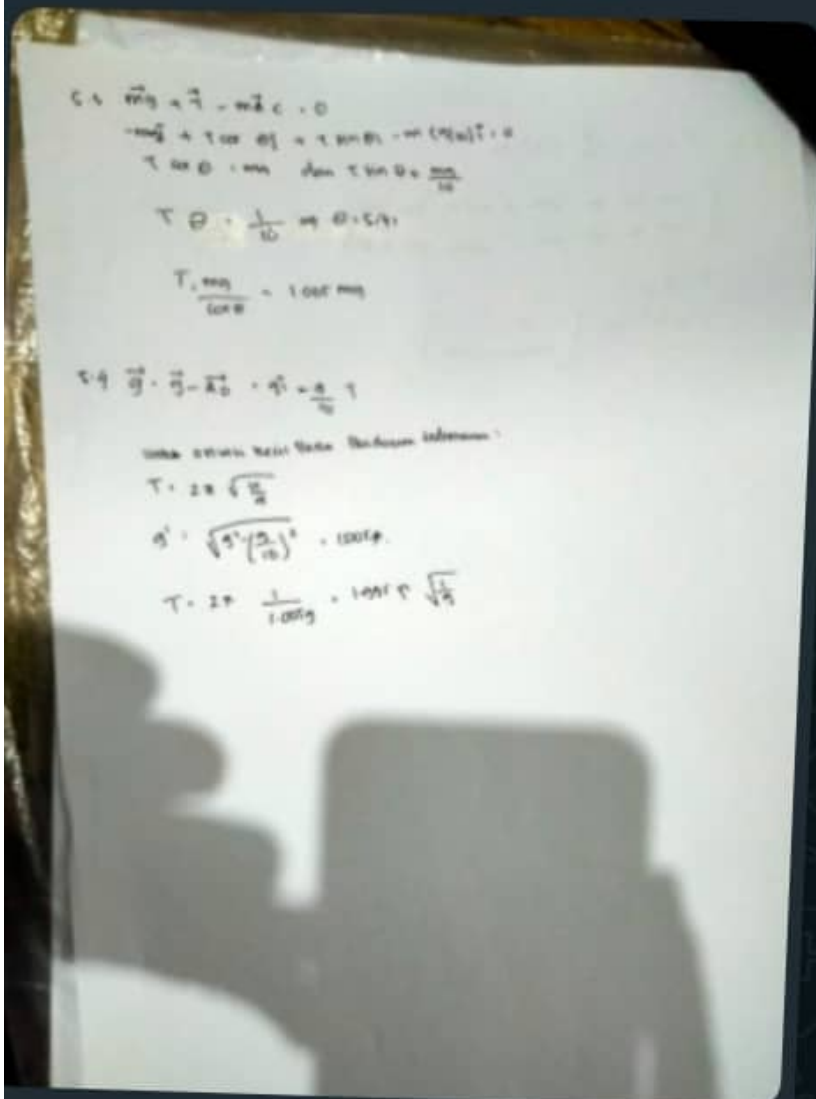
$$r^e = r^a - r^e$$

$$\frac{r^e}{a}(t) = \begin{bmatrix} R_a \cos \omega t - R_e \cos \omega t \\ R_a \sin \omega t - R_e \cos \omega t \end{bmatrix}$$

Yang ini 5.7 a

23:27 ✓✓

Indah 🌸

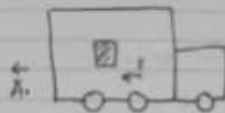


Gini ga guys cobaa ge cek

23:34

5.9. $\text{Cat} = f - Nmg$

pada frictional force acting on the box



$$f - m\ddot{A} = m\ddot{a}$$

ikarang, f adalah reg force maka:

$$(b) \quad a = \frac{f}{m} = -\frac{Nmg}{m} = -Ng = -\frac{g}{3}$$

$$A = -\frac{g}{3} \text{ dari atau, } m\ddot{a} = m\ddot{A} = m'$$

maka jawaban (a) adalah

$$a' = a - A = -\frac{g}{3} + \frac{g}{3} = \frac{g}{6}$$

5.6. Jawaban:

$$a) \quad \vec{r} = \hat{i}(x_0 + R \cos \Omega t) + \hat{j}R \sin \Omega t$$

$$\vec{r} = -\hat{i}\Omega R \sin \Omega t + \hat{j}\Omega R \cos \Omega t$$

$$\vec{r} \cdot \vec{r} = v^2 = \Omega^2 R^2$$

$$v = \Omega R$$

$$b) \quad \vec{r} = \vec{r} - \vec{\omega} \times \vec{r} \text{ ketika } \vec{r} = \hat{i}x' + \hat{j}y'$$

$$= \hat{i}\Omega R \sin \Omega t + \hat{j}\Omega R \cos \Omega t - \omega \times (\hat{i}x' + \hat{j}y')$$

$$= \hat{i}\Omega R \sin \Omega t + \hat{j}\Omega R \cos \Omega t - \omega \times \hat{i}x' + \omega \times \hat{j}y'$$

$$\dot{x}' = \omega y' - \Omega R \sin \Omega t$$

$$\dot{y}' = -\omega x' + \Omega R \cos \Omega t$$

23:34

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$$\begin{aligned} \dot{u}' &= \dot{x}' + i\dot{y}' = \omega y' - \Omega R \sin \Omega t + i(-\omega x' + \Omega R \cos \Omega t) \\ i\omega u' &= -\omega y' + i\omega x' \\ \Rightarrow u' + i\omega u' &= -\Omega R \sin \Omega t + i\Omega R \cos \Omega t = i\Omega R e^{i\Omega t} \end{aligned}$$

$$u' = A e^{-i\omega t} + B e^{i\omega t}$$

$$u' = -i\omega A e^{-i\omega t} + i\omega B e^{i\omega t}$$

$$i\omega u' = i\omega A e^{-i\omega t} + i\omega B e^{i\omega t}$$

$$\Rightarrow u' + i\omega u' = i(\omega + \Omega) B e^{i\omega t}, \text{ maka } B = \frac{\Omega R}{\omega + \Omega}$$

$$u' = A + B, u'(0) + i y(0) = x_0 + R$$

$$\Rightarrow A = x_0 + R - B$$

$$= x_0 + R = \frac{\Omega R}{\omega + \Omega} \text{ maka } A = x_0 + \frac{\omega R}{\omega + \Omega}$$

$$u' = A + B = x'(0) + i y(0) = x_0 + R$$

$$\Rightarrow A = x_0 + R - B$$

$$= x_0 + R = \frac{\Omega R}{\omega + \Omega}, \text{ maka } A = x_0 + \frac{\omega R}{\omega + \Omega}$$

$$u' = \left[x_0 + \frac{\omega R}{\omega + \Omega} \right] e^{-i\omega t} + \frac{\Omega R}{\omega + \Omega} e^{i\omega t}$$

$$\begin{aligned} u' + i\omega u &= \omega y' - \Omega R \sin \Omega t + i\Omega R \cos \Omega t = i\Omega R e^{i\Omega t} \\ \omega u' &= -\omega y' + i\omega x' \\ \Rightarrow u' + i\omega u &= \Omega R \sin \Omega t + i\Omega R \cos \Omega t = i\Omega R e^{i\Omega t} \end{aligned}$$

$$u' = A e^{-i\omega t} + B e^{i\Omega t}$$

$$u' = -i\omega A e^{-i\omega t} + i\Omega B e^{i\Omega t}$$

$$\omega u' = i\omega A e^{-i\omega t} + i\omega B e^{i\Omega t}$$

$$\Rightarrow u' + i\omega u = i(\omega + \Omega) B e^{i\Omega t}, \text{ maka } B = \frac{\Omega R}{\omega + \Omega}$$

$$u' = A + B = x'(0) + i y'(0) = x_0 + R$$

$$\Rightarrow A = x_0 + R - B$$

$$= x_0 + R = \frac{\Omega R}{\omega + \Omega} \quad \text{maka } A = x_0 + \frac{\omega R}{\omega + \Omega}$$

$$u' = A + B = x'(0) + i y'(0) = x_0 + R$$

$$\Rightarrow A = x_0 + R - B$$

$$= x_0 + R = \frac{\Omega R}{\omega + \Omega}, \text{ maka } A = x_0 + \frac{\omega R}{\omega + \Omega}$$

$$u' = \left[x_0 + \frac{\omega R}{\omega + \Omega} \right] e^{-i\omega t} + \frac{\Omega R}{\omega + \Omega} e^{i\Omega t}$$



Kelompok 4 Me...

Indah🐝, Winda, You



$$\begin{aligned} c) \frac{d}{dt} V_a(t) &= \frac{d}{dt} V_a^e(t) \\ &= \begin{bmatrix} -\omega_a^2 R_a \cos \omega_a t + \omega_e^2 R_e \sin \omega_e t \\ -\omega_a^2 R_a \sin \omega_a t + \omega_e^2 R_e \cos \omega_e t \end{bmatrix} \end{aligned}$$

Ini 5.7 C

23:34

Indah🐝

$$\begin{aligned} 7.b \quad V_a^e(t) &= \frac{d}{dt} r_a^e(t) \\ &= \begin{bmatrix} -\omega_a R_a \sin \omega_a t + \omega_e R_e \sin \omega_e t \\ \omega_a R_a \cos \omega_a t - \omega_e R_e \cos \omega_e t \end{bmatrix} \\ t=0 \\ V_a^e(t) &= 0 \begin{bmatrix} 0 \\ \omega_a R_a - \omega_e R_e \end{bmatrix} \end{aligned}$$

7.b nyaa ginii

23:35

okeeee sipp abis ni aku satuin sekalian susun vc
yaa gaiss

23:35 ✓✓

Winda humanbobrok🐝

Okeee put

23:36

Indah🐝

Okee met boboooo

23:40



Message

