



Kelompok 3 Mekanika

Dian, Neo, Ririn, Anda



Guyss yuk diskusi yukkk 16.46 ✓✓

Ririn Oriska

Ayokk,, nomor 1 dlu yaa 16.47

Ada yang tau pake rumus apa? 16.47

Dian Permata Hati

- For each of the values of the constant force in the weight of the particle:
- 8.2 A plank lies horizontally while being pulled along in a moving train. If the mass of the plank is m , find the tension in the cord and the deflection from the level vertical if the train is accelerating forward with constant acceleration $g/10$. (Ignore any effects of Earth's rotation.)
 - 8.4 If, in Problem 8.2, the plank lies not held steady but oscillates as a simple pendulum, find the period of oscillation for small amplitudes.
 - 8.6 A loading truck is traveling on a level road. The driver suddenly applies the brakes, causing the truck to decelerate by an amount $g/2$. This causes a box in the rear of the truck to slide forward. If the coefficient of sliding friction between the box and the truckbed is $\frac{1}{2}$, find the acceleration of the box relative to (a) the truck and (b) the road.

The second problem will be discussed briefly in Chapter 10.

Problems 215

- 8.8 The position of a particle in a fixed inertial frame of reference is given by the vector

$$\mathbf{r} = \mathbf{r}_0 + \mathbf{R} \cos \omega t + \mathbf{g} t^2 \sin \omega t$$

where $\mathbf{r}_0$, $\mathbf{R}$, and $\mathbf{g}$ are constants.

(a) Show that the particle moves in a circle with constant speed.

(b) Find two coupled, first-order differential equations of motion that relate the components of position, x' and y' , and the components of velocity, $\dot{x}'$ and $\dot{y}'$, of the particle relative to a frame of reference rotating with an angular velocity $\omega = \mathbf{g}/R$.

(c) Letting the fixed and rotating frames of reference coincide at time $t = 0$ and let $\mathbf{r}_0 = R\mathbf{i}$ and $\mathbf{g} = g\mathbf{j}$, assume that $\mathbf{R}$ and $\mathbf{g}$ are in the xy -plane.

Soalnya ini kann 16.47

Iyaaaa no 1 kalian itu rumus awalnya sama dengan 0 gak?? 16.47 ✓✓

Dian Permata Hati

Soalnya ini kann

Iyaa yg itu 16.47 ✓✓

Pake rumus vektor kan ya??? 16.47 ✓✓



Kirim pesan





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Ririn Oriska

Dian Permata Hati

Soalnya ini kann



Iya sampe 5.7

16.47

Neo Safitri

Iya yang rumusnya $N + mg - ma_0$

16.48

Iya bukan

16.48

Neo Safitri

Iya yang rumusnya $N + mg - ma_0$

Iyaaaa ituuu

16.48 ✓✓

Aku udh ngitung tapi gatau bener apa
enggaa

16.48 ✓✓

Neo Safitri

Coba kek mana liat

16.48

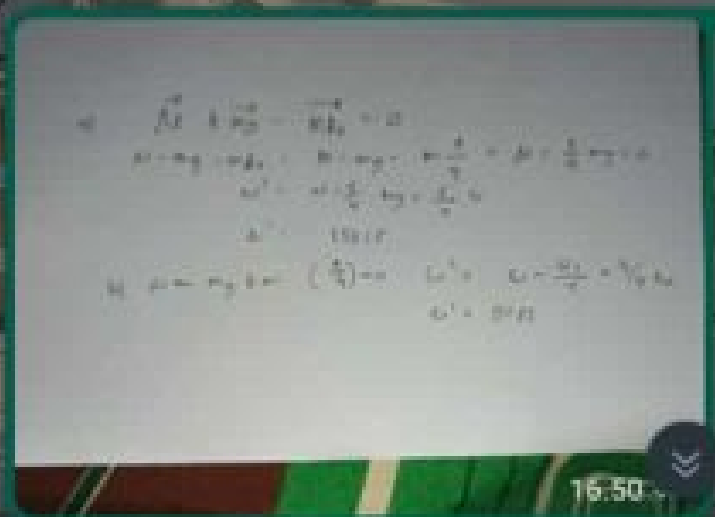
Wait yaa

16.48 ✓✓

Ririn Oriska

Oke samain ya aku jugaa nih

16.49



16.50



Kirim pesan





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Jelas gak guys? 16.51 ✓✓

Dian Permata Hati

Jelas kokk 16.51

Neo Safitri

Jelas 16.51

Nah itu gmna masih agak ga yakin di w aksennya itu 16.51 ✓✓

Neo Safitri

Bentar keknya ada yang salah 16.51

Hahhh? Coba bund mana 16.52 ✓✓

Ririn Oriska

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

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

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

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

$$W' = 15016$$

Aku yang a kek gini,, 16.53



Kirim pesan





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Cba deh

16.53

Yang b blm tapi

16.53

Neo Safitri

Coba yang B aku ya

16.53

Ririn Oriska

Oke

16.53

Ririn Oriska

Aku yang a kek gini.

Oalahh iyaaa itu harusnya 15016 yaaa
soalnya kan dia 5/4 w

16.54 ✓✓

Kok aku bisa ngitung 15015 ya 🤔🤔

16.54 ✓✓

Ririn Oriska

Kamu cma salah hitung aja kok,

16.54

Neo Safitri

$$B. \quad F_t - mg + m \left(\frac{v}{r} \right) = 0$$

$$\frac{mv^2}{r} + m - \frac{mv^2}{4} = \frac{3}{2}mv$$

$$mv^2 = 15016$$

16.54

Ririn Oriska

Tapi jalannya udah bener

16.54

Neo Safitri

Gimama

16.54



Kirim pesan





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Ririn Oriska

Neo Safitri

Foto

Iya gini benerr sama kek akuu

16.55

Neo Safitri

Oke lanjut no 2

16.55

Neo Safitri

Foto

Iyaaaa bener inii kayanyaaa

16.56 ✓✓

Nahhh no 2 itu

16.56 ✓✓

Ririn Oriska

Aku kurang paham nih no 2 pake rumus yang mana

16.57

Pake rumus yg F cent yaa?

16.57 ✓✓

Oiyaa ini ada dl nya gasi??

16.57 ✓✓

Neo Safitri

Bentar aku coba ya

16.57

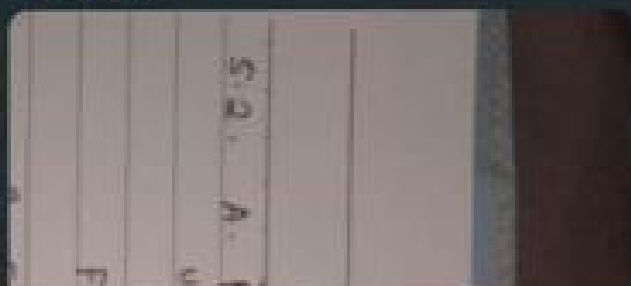
Tapi baru yang a

16.57

Coba bund gmnaa samaa gak

16.58 ✓✓

Neo Safitri



Kirim pesan



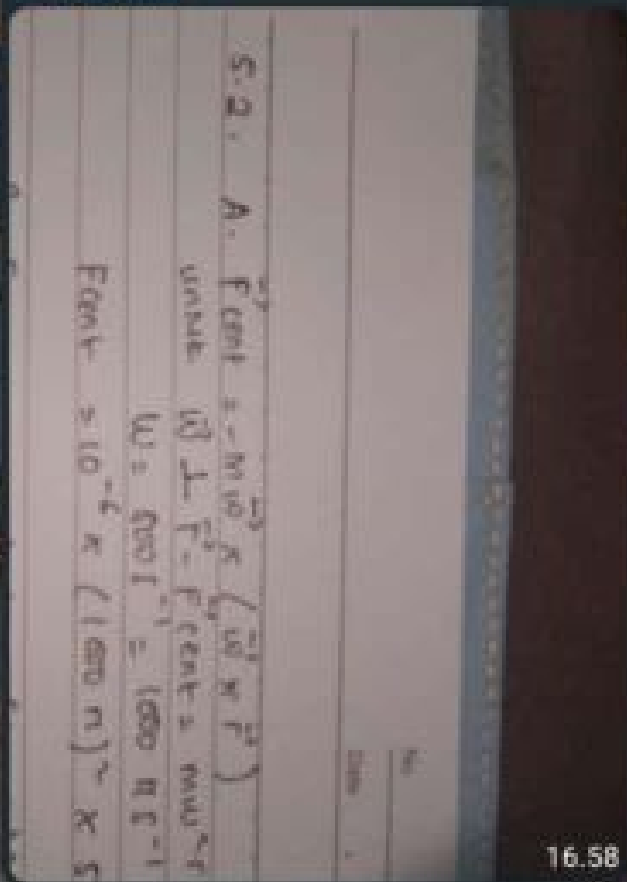


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Neo Safitri



16.58

Gimana

16.58

Ririn Oriska

Anda

Oiyaa ini ada di nya gasi??

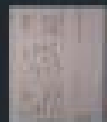
Gak tau, tapi kayaknya hari ini harus udh kelar

16.58

Ririn Oriska

Neo Safitri

Foto



Owalah pake rumus ini... 16.59

Neo Safitri

Yang b gak tau aku 16.59



Kirim pesan





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Neo Safitri

Foto

Samaa kok 16.59 ✓✓

Aku udh bentar ya 16.59 ✓✓

Dian Permata Hati

Aku udh sii yg b, tpi gatau bener apa engga

16.59

Neo Safitri

Kirim aja 16.59

Dian Permata Hati

$$b) \frac{F_{cent}}{F_g} = \frac{m \omega^2 r}{mg} = \frac{(100 \pi)^2 \cdot 5}{980} = 5,04 \times 10^{-3}$$

Kyk gini aku

17.00

Neo Safitri

Dian Permata Hati

Kyk gini aku

Pake fcent /fg ya 17.00

$$\frac{F_{cent}}{F_g} = \frac{m \omega^2 r}{mg} = \frac{(100 \pi)^2 \cdot 5}{980} = 5,04 \times 10^{-3}$$



Kirim pesan



**Kelompok 3 Mekanika**

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Iyaa sama

17.00 ✓✓

Dian Permata Hati**Neo Safitri**

Pake fcent /fg ya

Iyaaa

17.00

Neo Safitri

Oke lanjut ya no 3

17.01

Nahh no 3 itu rumus awalnya pake mAo atau mAc si yaa???

17.01 ✓✓

Dia juga pake persamaan yg sama dengan 0 ya

17.02 ✓✓

Dian Permata Hati

Aku agak bingung yg nmr 3 ituu

17.02

Neo Safitri

Aku juga

17.02

Ririn bisa gak?

17.02

Yin Nemu gak no 3???

17.02 ✓✓

Agak bingung di rumusnya aku

17.02 ✓✓

Gapaham modelan kereta yg akselerasinya tetap atau konstan itu gmna perhitungannya

17.03 ✓✓

Ririn Oriska**Neo Safitri**

Ririn bisa gak?

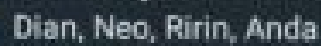
Aku udh pake mAc

17.03



Kirim pesan




$$\begin{aligned}
 m\vec{g} + \vec{T} - \mu N \hat{c} &= 0 \\
 -mg\hat{j} + T\cos\theta\hat{j} + T\sin\theta\hat{i} &= m(4\text{ m/s}^2)\hat{i} \\
 T\cos\theta &= mg \\
 \tan\theta &= \frac{1}{4} \Rightarrow \theta = 5.71^\circ \\
 T &= \frac{mg}{\cos\theta} = 1.025 \text{ mg}
 \end{aligned}$$

17.03

17.03 ✓

17.04 ✓

17.04

1305

$\odot \vec{a} = \vec{b} - \vec{a} = 2\vec{i} - \frac{3}{10}\vec{j}$
 Länge (norm) von $\vec{a}$ (normierte) Vektoren:
 $|\vec{a}| = 2 \sqrt{1 + \frac{9}{100}}$
 $\hat{a} = \frac{\vec{a}}{|\vec{a}|} = \frac{20\vec{i} - 3\vec{j}}{\sqrt{409}}$





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Dian Permata Hati

$$T = \frac{2\pi}{\omega} = \frac{2\pi}{\sqrt{\frac{g}{L}}} = \frac{2\pi}{\sqrt{\frac{9.8}{1.5}}} = 2.48 \text{ s}$$

untuk sistem yang pada pendulum sederhana:

$$T = 2\pi \sqrt{\frac{L}{g}}$$

$$L = \frac{g T^2}{4\pi^2} = \frac{9.8 \times (2.48)^2}{4\pi^2} = 1.505 \text{ m}$$

$$T = 2\pi \sqrt{\frac{1.505}{9.8}} = 2.48 \text{ s}$$

Nmr 4 gini aku

17.05

Neo Safitri

Dian Permata Hati

Nmr 4 gini aku



Sama kok

17.05

Ririn Oriska

Dian Permata Hati

Nmr 4 gini aku



I see,, ngerti akuu, bener kok aku cek

17.06

Gass no 5 gakk

17.07

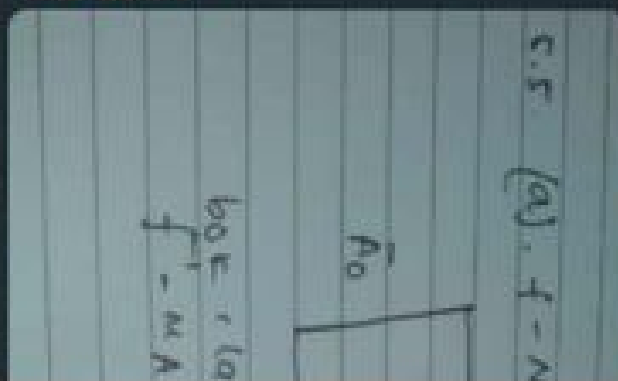
Aku buntu no 5 6 7,, ada yang tau rumusnya gak?

17.08

Gmna ada yang bisa gak??

17.11

Neo Safitri



Kirim pesan



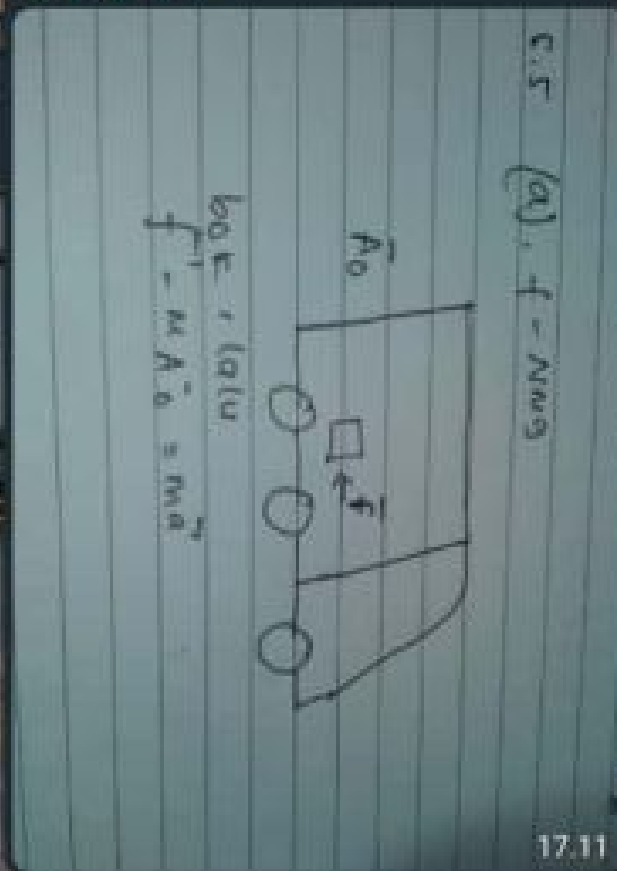


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Neo Safitri



Ini yang a

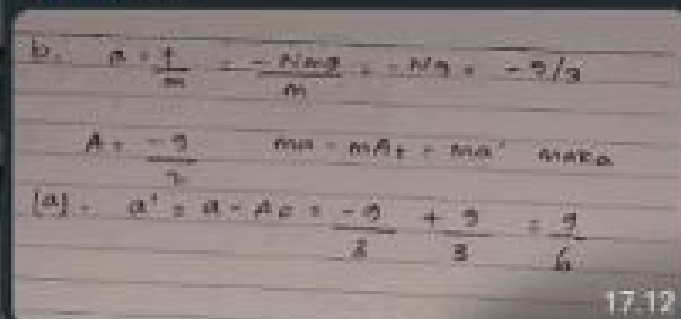
17.11

Dian Permata Hati

Aku masih bingung itu gimana rin

17.11

Neo Safitri



Coba bener gak

17.12



Kirim pesan





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$$b = \frac{F}{k} = \frac{100000}{10^6} = 0.1 \text{ m}$$

$$k = \frac{F}{b} = \frac{100000}{0.1} = 10^6 \text{ N/m}$$

$$a_1 = a_2 = \frac{F}{k} = \frac{100000}{10^6} = 0.1 \text{ m}$$

Aku ngitung yg B juga gitu koo

17.12 ✓✓

Ririn Oriska

@Sihfa Zhainita gmana kamu ngerti gak...

17.13

Sama samaa

17.13 ✓✓

Ririn Oriska

@Sihfa Zhainita gmana kamu ngerti gak...

Aku baru mudeng no 6 yg C

17.13 ✓✓

Ririn Oriska

Yaudah gas aja aku gak mudenggh

17.13

Neo Safitri

Yok bisa ya dikit lagi

17.13



Kirim pesan





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c. $\vec{v} = v_x \hat{i} + v_y \hat{j}$ $\Rightarrow \vec{v} = \sqrt{v_x^2 + v_y^2}$

$$v_x = \frac{dx}{dt} = \frac{d}{dt} \left(\frac{1}{2} \cos 2t \right) = -\sin 2t$$

$$v_y = \frac{dy}{dt} = \frac{d}{dt} \left(\frac{1}{2} \sin 2t \right) = \cos 2t$$

$$v = \sqrt{(-\sin 2t)^2 + (\cos 2t)^2} = \sqrt{\sin^2 2t + \cos^2 2t} = \sqrt{1} = 1$$

Jadi, $v = 1$

17.13 ✓

Ririn Oriska

2 nomor lagi

17.13

Hoohhh gass

17.13 ✓

Neo Safitri

Aku gak mudeng no 6

17.14

b) $\vec{F} = \vec{F} - \vec{G}$ $\Rightarrow \vec{F} = \vec{G}$ $\Rightarrow F = G$

$$F = \frac{1}{2} \cos 2t$$

$$G = \frac{1}{2} \sin 2t$$

$$\frac{1}{2} \cos 2t = \frac{1}{2} \sin 2t$$

$$\cos 2t = \sin 2t$$

$$\tan 2t = 1$$

$$2t = \frac{\pi}{4}$$

$$t = \frac{\pi}{8}$$

Yg B keknya ginii

17.14

Dahh yg A i m tired

17.15 ✓



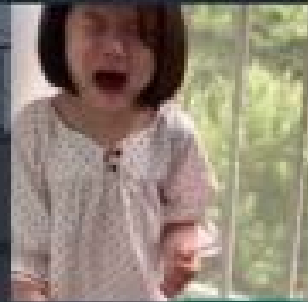
Kirim pesan





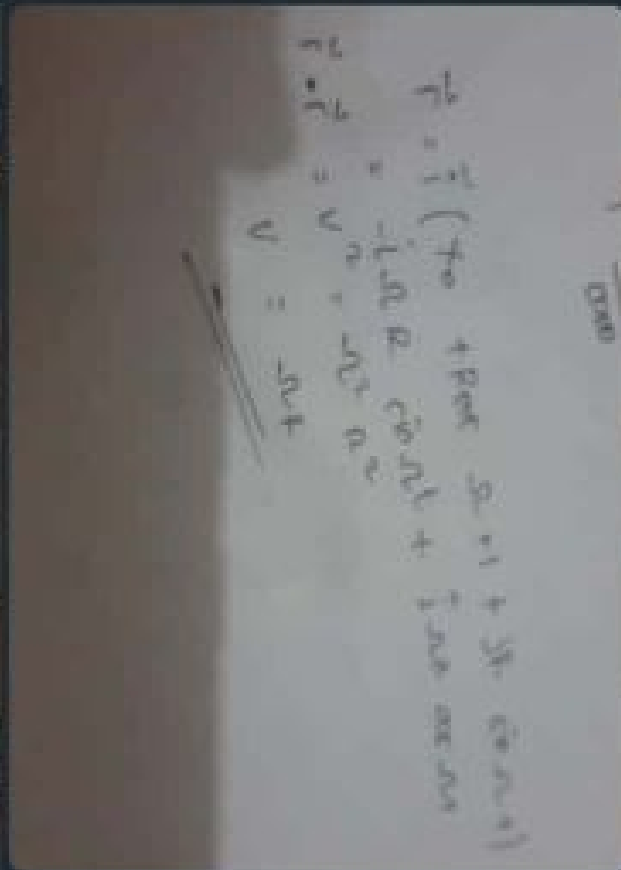
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17.15 ✓✓

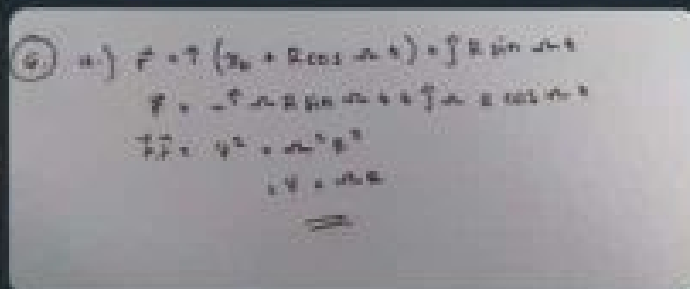
Ririn Oriska



Gini gak yang a

17.16

Dian Permata Hati



Yg a dah mentok :"

17.16



Kirim pesan





Kelompok 3 Mek...

Dian, Ririn, Sihfa, Anda



Udah telay 18.13 ✓✓

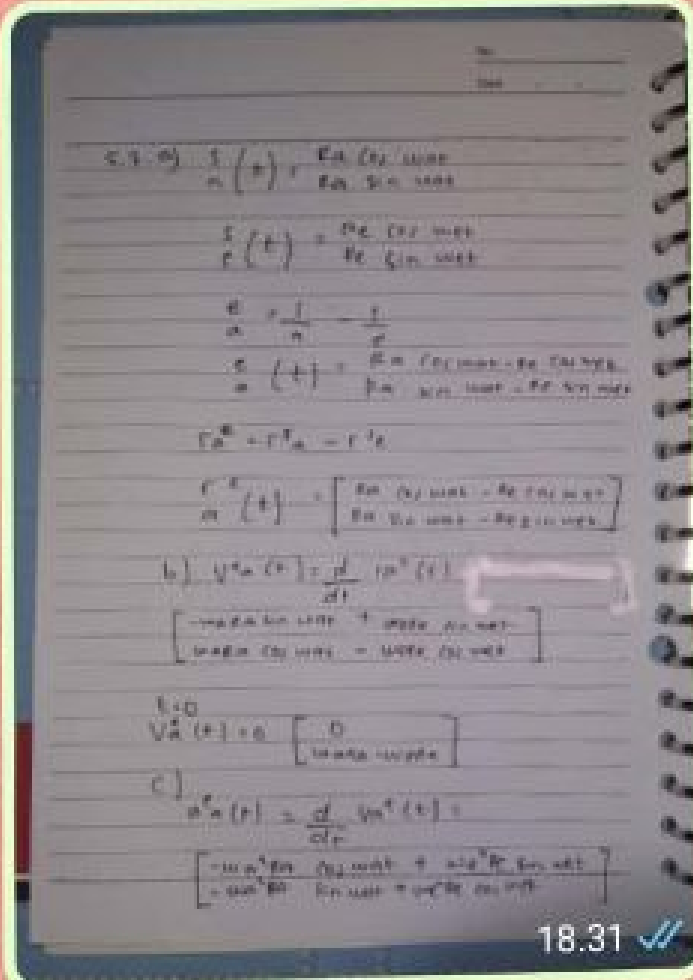
Dian P. Fis'20

Iyaaa mam 18.15

Kalo mau ditambah aku tungguin

18.20 ✓✓

Aku mau nambahin ya 18.31 ✓✓



18.31 ✓✓

Sihfa P. Fis'20

Okee mamiii maacih lope 18.45



Ketik pesan

