



Terenkripsi secara end-to-end



Nadia, Nisa, Alfia

46.21



**Kel. 1 Mekanika...**

Alfia, Annisa, Insani, Pita...

GABUNG**Alfia Rosa**

Assalamualaikum gaiss 19.21

Insani Triana

Wa'alaikumussalam

Warahmatullah

Wabarakatuh

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Insani Triana

Yukkkk diskusiin sekarang 19.22

Annisa Dira Fis20

Waalaikumsalam fia 19.22

Pita Nadia Fis20

waalaikumsalam 19.22

Alfia Rosa

kuyyy kuyyy 19.22

Annisa Dira Fis20

Yukk gas 19.22

Insani Triana

Salin dulu soal dri vc 19.22



Kirim pesan





Kel. 1 Mekanika...

Alfia, Annisa, Insani, Pita...

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Insani Triana

Salin dulu soal dri vc 19.22

Hp ku lemot 19.22

Alfia Rosa

iya minta tolong dong kirimin ke sini
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Insani Triana

Yaudah brtti ada yg bagi yaaa 19.23

Berapa soal 19.23

Annisa Dira Fis20

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Alfia Rosa

dibagi aja kali ya biar cepet 19.24

Insani Triana

Okeeee 19.24

Pita Nadia Fis20

collecting terms and dropping terms involving ω^2 ,

$$\left(\ddot{x} + \frac{g}{l}x\right)\cos\omega t + \left(\ddot{y} + \frac{g}{l}y\right)\sin\omega t = 0 \quad (5.6.5)$$

and an identical equation, except that the sine and cosine are reversed. Clearly, the preceding equation is satisfied if the coefficients of the sine and cosine terms both vanish, namely,

$$\ddot{x} + \frac{g}{l}x = 0 \quad (5.6.6a)$$

$$\ddot{y} + \frac{g}{l}y = 0 \quad (5.6.6b)$$

These are the differential equations of the two-dimensional harmonic oscillator discussed previously in Section 4.4. Thus, the path, projected on the xy plane, is an ellipse with fixed orientation in the unprimed system. In the primed system the path is an ellipse that undergoes a steady precession with angular speed $\omega' = \omega \sin \lambda$.

In addition to this type of precession, there is another natural precession of the spherical pendulum, which is ordinarily much larger than the rotational precession under discussion. However, if the pendulum is carefully started by drawing it aside with a thread and letting it start from rest by burning the thread, the natural precession is rendered neg-



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- accelerating forward with constant acceleration $g/3$. (Ignore any effects of Earth's rotation.)
- 5.4 If, in Problem 5.3, the plumb line is not held steady but oscillates as a simple pendulum, find the period of oscillation for small amplitude.
- 5.5 A landing 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.

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Pita Nadia Fis20

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

$$\mathbf{r} = i(x_0 + R \cos \Omega t) + jR \sin \Omega t$$

where x_0 , R , and Ω 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 $\omega = k\Omega$.

(c) Letting the fixed and rotating frames of reference coincide at times $t = 0$ and letting $u' = \dot{x}' + iy'$, find $u'(t)$, assuming that $\Omega \neq -\omega$. (Note: $i = \sqrt{-1}$.)

- 5.7 A new asteroid is discovered in a circular orbit of radius $4^{1/3}$ AU about the Sun.⁴ Its period of revolution is precisely 2 years. Assume that at $t = 0$ it is at its distance of closest approach to the Earth.

(a) Find its coordinates $[x(t), y(t)]$ in a frame of reference fixed to Earth but whose axes remain fixed in orientation relative to the Sun. Assume that the x -axis points toward the asteroid at $t = 0$.

(b) Calculate the velocity of the asteroid, relative to Earth, at $t = 0$.

(c) Find the x - and y -components of the acceleration of the asteroid in this frame of reference. Integrate them twice to show that the resulting positions as a function of time agree with part (a).

(d) Plot the trajectory of the asteroid as seen from the rotating frame of reference attached to Earth for its 2-year orbital period. (Hint: Use Mathematica's ParametricPlot graphing tool.)

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Annisa Dira Fis20

Mantapp

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Insani Triana

Di translate dulu eyyy

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Pita Nadia Fis20

Insani Triana

Di translate dulu eyyy

oiyaaa

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Insani Triana

Pita Nadia Fis20



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**Kel. 1 Mekanika...**

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GABUNG**Insani Triana****Pita Nadia Fis20** ini soalnya gaes

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Biar mudah di copas

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Pita Nadia Fis20

ada bentar ku kirim

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Alfia Rosa

yodah bagi ya

Dira : translate + ngerjain nomor 5.1

Pita : ngerjain 5.2 + 5.3

Alfia : ngerjain 5.4 + 5.5

Insani : ngerjain 5.6 + 5.7

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Pita Nadia Fis20

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Alfia Rosa**Alfia Rosa**

yodah bagi ya

Dira : translate + ngerjain nomor 5.1

Pita : ngerjain 5.2 + 5.3...

klo gini gimana?

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Pita Nadia Fis20

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**Kel. 1 Mekanika...**

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Dira : translate + ngerjain nomor 5.1

Pita : ngerjain 5.2 + 5.3...

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Pita Nadia Fis20

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Insani Triana**Alfia Rosa**

klo gini gimana?

Setuju

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Yaudah sambil telponan yaa bair cepet

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Kita targetin 20.00 udah 1 nomerr

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Annisa Dira Fis20

lyaa boleh

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Alfia Rosa

iya telpon aja biar efektif

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Insani Triana

Baru targetttt yaaaaa

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Pita Nadia Fis20

setujuu

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