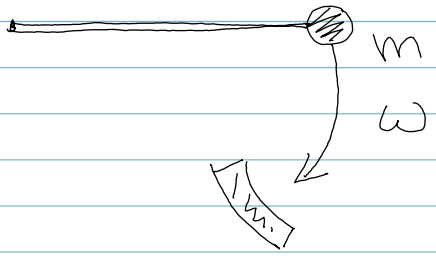
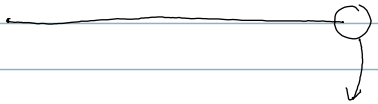
Dobaikan putar
(Impuls angular)



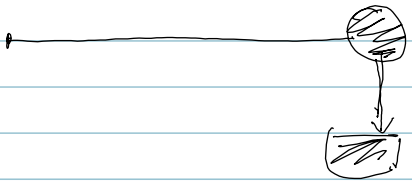


$I_A \backsim \tau$

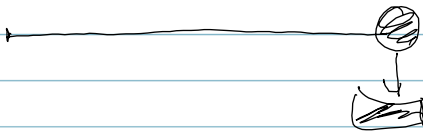
$I_A \backsim t$

Satuan Dobrakan putar

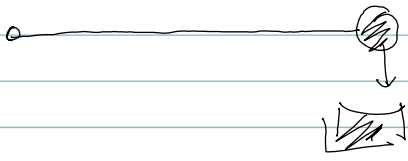
1 sdp dobrakan putar yang di berikan oleh momen gaya 1 N.m selama 1 detik



1 sdp

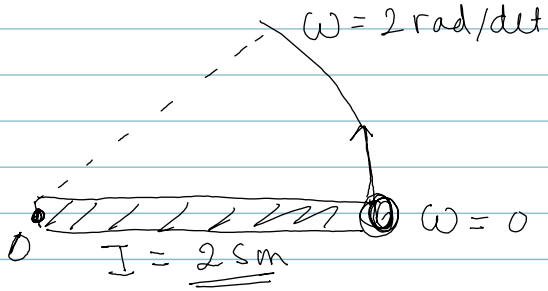


1 sdp



T.t sdp

1)

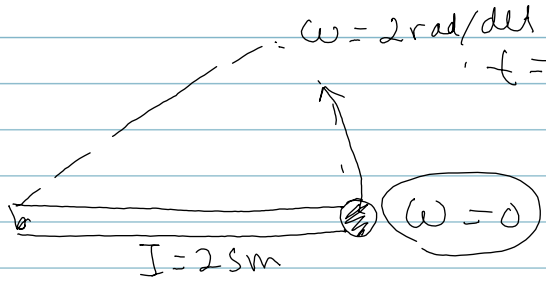


$$\alpha = \frac{2-0}{2} = 1 \text{ rad/dut}^2$$

$$\tau = I \cdot \alpha = 2 \cdot 1 = 2 \text{ N·m}$$

$$I_A = \tau \cdot t = 2 \cdot 2 = 4 \text{ sdp}$$

2)

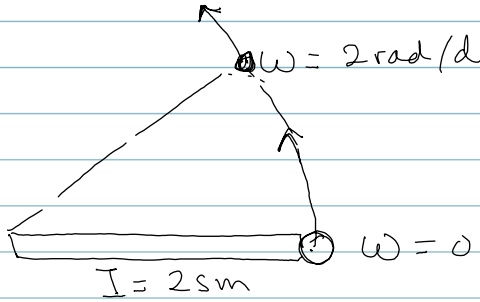


$$\alpha = \frac{2-0}{4} = \frac{1}{2} \text{ rad/dut}^2$$

$$\tau = I \cdot \alpha = 2 \cdot \frac{1}{2} = 1 \text{ N·m}$$

$$I_A = \tau \cdot t = 1 \cdot 4 = 4 \text{ sdp}$$

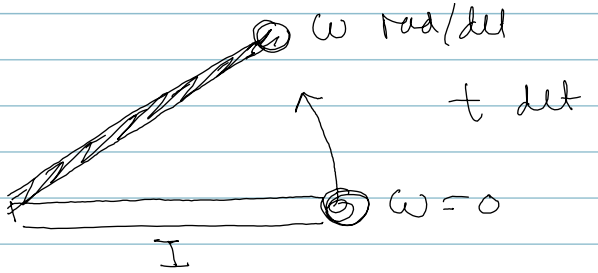
Momentum sudut L
(kemampuan dobrak putar).



$I_A = 4\ sdp$

$L_0 = 0$

$L = 0 + 4\ sdp = 4\ sdp$



$\alpha = \frac{\omega - 0}{t} = \frac{\omega}{t}$ rad/det²

$\tau = I \cdot \alpha = \frac{I\omega}{t}$. N . m .

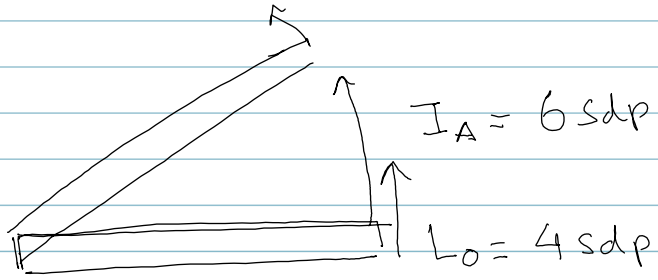
$I_A = \tau \cdot t = \frac{I\omega}{t} \cdot t = I\omega$

$L_0 = 0$

$L = 0 + I\omega$

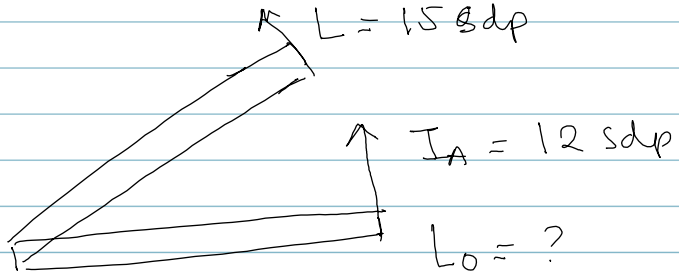
$\boxed{L = I\omega}$

1)



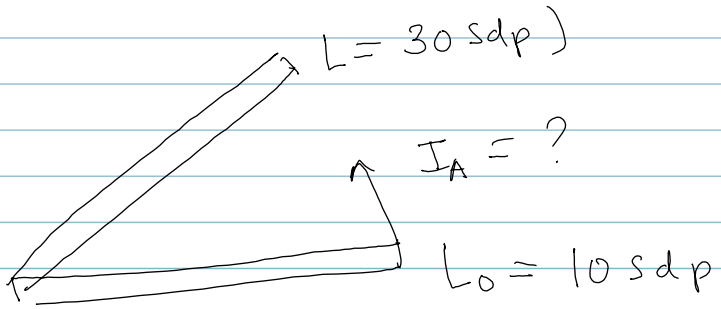
$L = 4 + 6 = 10$ sdp

2)



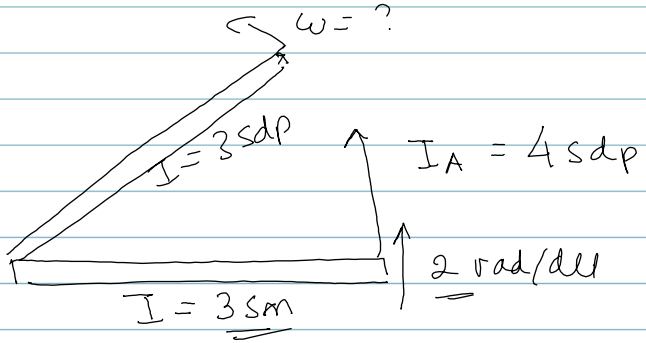
$L_o = 15 - 12 = 3$ sdp

3)



$I_A = 30 - 10 = 20$ sdp

4)

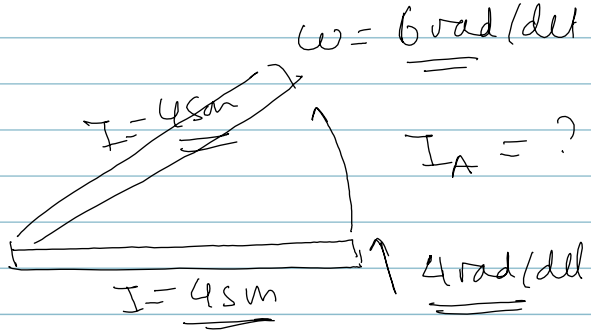


$L_0 = 3 \cdot 2 = 6$ sdp

$L = 6 + 4 = 10$ sdp

$\omega = \frac{10}{3}$ rad/dll

5)

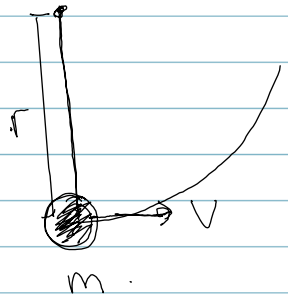


$L_0 = 16$ sdp

$L = 4 \cdot 6 = 24$ sdp

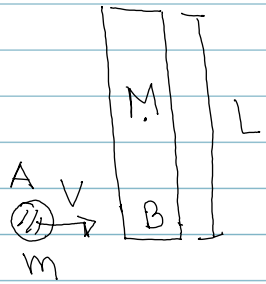
$I_A = 8$ sdp

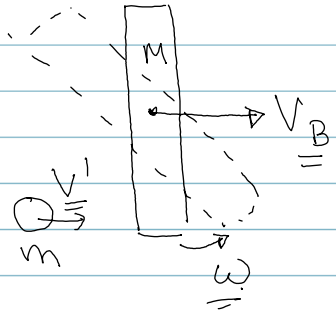
berapa momentum sudut ?

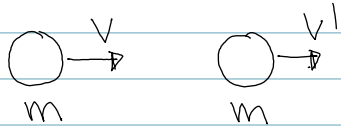


$$L = I \cdot \omega$$
$$= m r^2 \cdot \omega$$
$$= m r^2 \frac{V}{r}$$
$$\boxed{L = mvr}$$

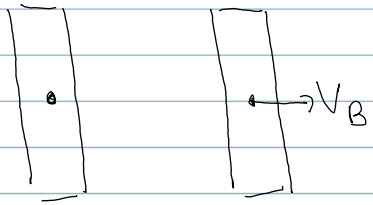
1)





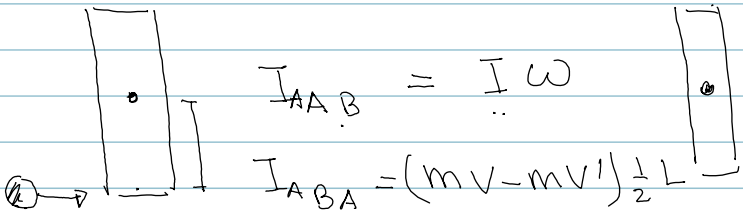


$$mV - mV' = I_{BA}$$



$$MV_B = I_{AB}$$

$$\boxed{mV - mV' = MV_B} \quad \text{---(1)}$$



$$I_{AAB} = I\omega$$

$$I_{ABA} = (mV - mV')\tfrac{1}{2}L$$

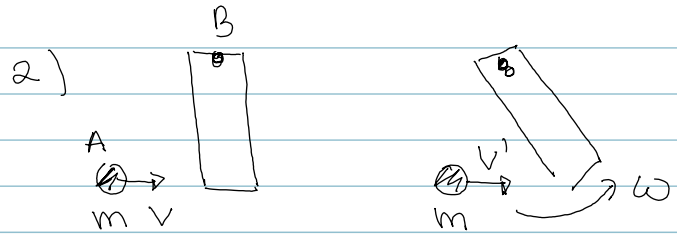
I = Momen Inersia $= \frac{1}{12}ML^2$

$$\boxed{I\omega = (mV - mV')\tfrac{1}{2}L}$$

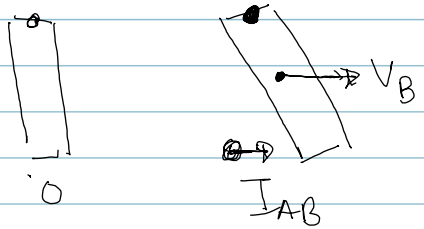
$$\boxed{\tfrac{1}{2}mV^2 = \tfrac{1}{2}mV'^2 + \tfrac{1}{2}MV_B^2 + \tfrac{1}{2}I\omega^2}$$

V', ω, V_B

2)

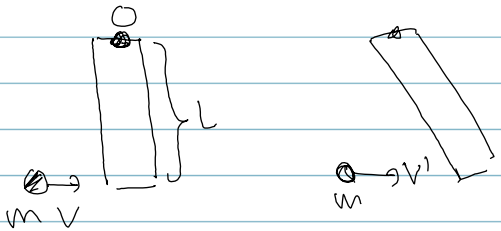


$mv - mv' = I_{BA}$ momentum



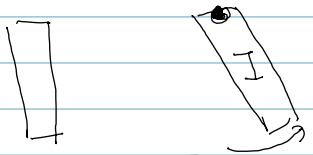
$MV_B \neq I_{AB}$

$MV_B \neq mv - mv'$



momentum sudut

$mvL - mv'L =$ Impuls angular $B \rightarrow A$



$I = \frac{1}{3} ML^2$

$I\omega$

$$mvL - mv'L = \frac{1}{3} ML^2 \omega$$

$$\frac{1}{2} mv^2 = \frac{1}{2} mv'^2 + \frac{1}{2} I\omega^2$$

ω, V'

$+ \frac{1}{2} I_{pm} \omega^2 + \frac{1}{2} MV_B^2$

$I_{pm} = \frac{1}{12} ML^2$

$V_B = (\omega \frac{1}{2} L)^2$