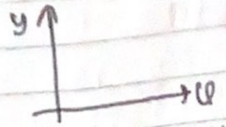
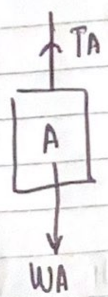
No: Senin
Date: 7-Oktober-2024

① Tentukan koordinat

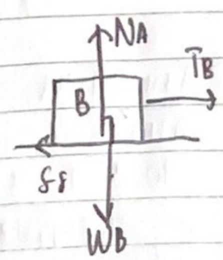


② gambar gaya
- F (tarik/dorong)
- N (normal)
- T (tali)
- W (massa)
- F (gerak)
  - Fs : diam
  - Fmax = $\mu_s . N$
  - Fk : gerak = $\mu_k . N$

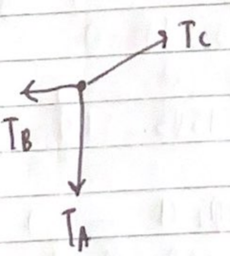
Benda A :



Benda B :

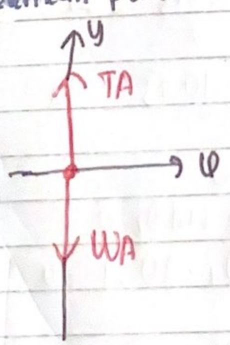


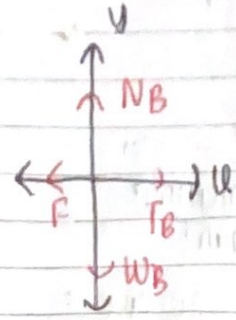
Titik simpul :



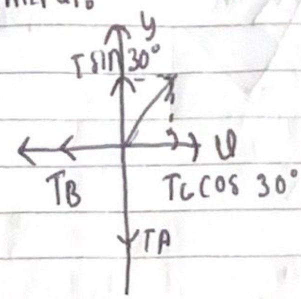
③ Proyeksikan pada koordinat

(A)





simpul :



④ Terapkan hukum newton :
- $\Sigma F = 0$
- $\Sigma F = m.a$

$\Sigma F_{Ay} = 0 \longrightarrow T_A - W_A = 0 \ldots (1)$

$W_A = -T_A$ ①

$\Sigma F_{By} = 0 \longrightarrow N_B - W_B = 0 \ldots (2)$

$N_B - 711 = 0$ ⑤

$\Sigma F_{Bx} = 0 \longrightarrow -f + T_B = 0 \ldots (3)$

$-\mu N_B + T_B = 0$

$-0{,}25 N_B + T_B = 0$ ④

$\Sigma F\ y = 0 \longrightarrow T \sin 30° - T_A = 0$ (4)

$0{,}5 T_C - T_A = 0$ ②

$\Sigma F_{sx} = 0 \longrightarrow T_B + T_C \cos 30° = 0$ (5)

$-T_B + 0{,}5\sqrt{3}\ T_C = 0$ ③

⑤ (2) $N_B - 711 = 0 \rightarrow N_B = 711$ N

④ (3) $(-0{,}25 \times 711) + T_B = 0 \rightarrow T_B = 711 \times 0{,}25$
$177{,}75$ N

③ (3) $-177{,}75 + 0{,}5\sqrt{3}\ T_C = 0$

② (4) $(0{,}5 \times -205{,}248) - T_A = 0$

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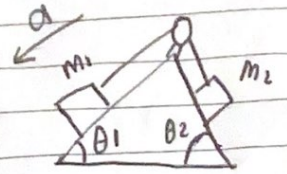
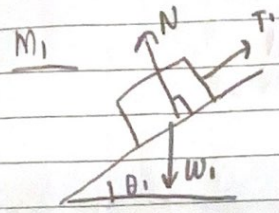
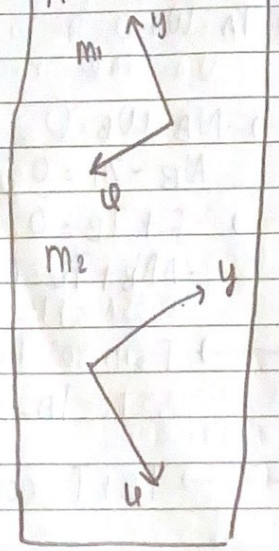
2) Diket: $m_1 = 3$ kg
$m_2 = 2$ kg
$\theta_1 = 30°$
$\theta_2 = 60°$
Dit: a) percepatan maing?
b) besar tegangan?

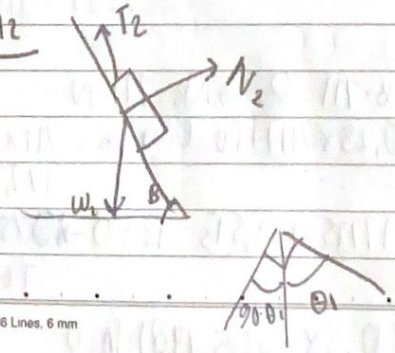


gerak
m_1 = turun
m_2 = naik

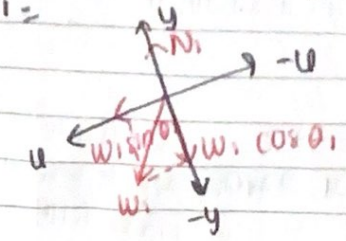


Koordinat:



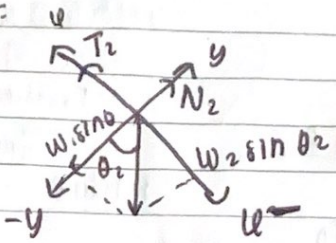


m_1 =



$g = 10$ m/s

m_2 =



$\Sigma F_{1a} = m_1 . a$
$w_1 \sin\theta_1 - T_1 = m_1 . a$
$30 . \frac{1}{2} - T_1 = 3 . a$
$15 - T_1 = 3a$ ... (1)

$\Sigma F_{1y} = 0$
$N_1 - w_1 \cos\theta_1 = 0$
$N_1 - 30 . \frac{1}{2}\sqrt{3} = 0$
$N_1 = 15\sqrt{3}$ ... (2)

$\Sigma F_{2a} = m_2 . a$
$T_2 - w_2 \sin\theta_2 = m_2 . a$
$T_2 - 20 . \frac{1}{2}\sqrt{3} = 2a$
$T_2 - 10\sqrt{3} = 2a$ ... (3)

$\Sigma F_{2y} = 0$
$N_2 - w_2 \sin\theta_2 = 0$
$N_2 - 20 . \frac{1}{2} = 0$
$N_2 = 10$ ... (4)

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Tali ideal dalam i'kaitol

$15 - T = 3a \rightarrow 15 - 3a = T$

$T - 10\sqrt{3} = 2a \rightarrow T = 2a + 10\sqrt{3}$

$a_1 : a_2 \quad T_1 : T_2$

$15 - 3a = 2a + 10\sqrt{3}$

$15 - 10\sqrt{3} = 2a + 3a$

$15 - 10\sqrt{3} = 5a$

$a = \frac{15 - 10\sqrt{3}}{5}$ //

14) DIK : $m_1 : m_2 = 3$ kg (kasus 1)

$m_1 = 6$ kg

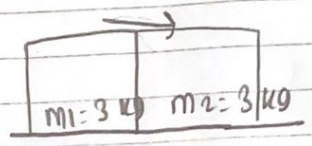
$m_2 = 3$ kg (kasus 2)

Tidak ada gaya gesek di balok 1

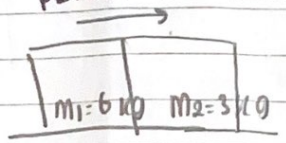
$F_k = 5{,}8$ N

DIT : a) besar gaya kontak

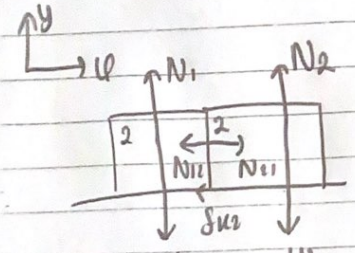
b) besar & arah percepatan masing2 balok



KASUS 1



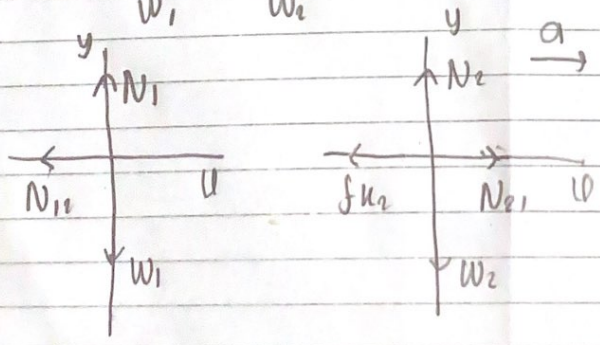
KASUS 2



$g = 10\ m/s^2$

$|N_{12}| = |N_{21}|$

$N_{12} = -N_{21}$



KASUS A

$\Sigma F_{1y} = 0$

$N_1 - W_1 = 0$

$N_1 - 30 = 0$

$N_1 = 30\ N \ldots (1)$

$\Sigma F_{2y} = 0$

$N_2 - W_2 = 0$

$N_2 - 30 = 0$

$N_2 = 30\ N \ldots (3)$

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$\Sigma F_{1x} = m_1 \cdot a$ $\quad$ $\Sigma F_{2x} = m_2 \cdot a$

$-N_{12} = m_1 \cdot a$ $\quad$ $-F_{k_2} + N_{21} = m_2 \cdot a$

$-N_{12} = 3a \quad (2)$ $\quad$ $-5,8 + N_{21} = 3a \quad (4)$

$|N_{12}| = |N_{21}| = |N_k|$

$-N_k = 3a$ $\quad$ $-N_k = -5,8 + N_k$

$-5,8 + N_k = 3a$ $\quad$ $-2N_k = -5,8$

$N_k = \frac{5,8}{2} = 2,9 N$

$a = \frac{-N_k}{3} = \frac{-2,9}{3} \; m/s^2$

⇓

diperlambat