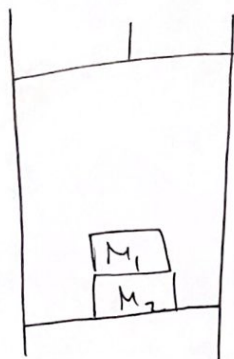


4

6 ק"ג - 10 ק"ג

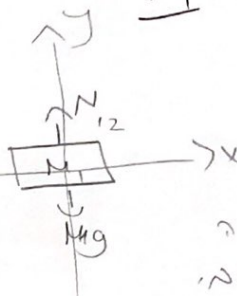
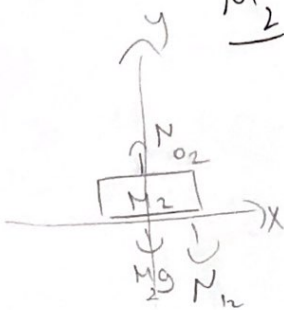
200



$$M_1 = M_2 = 10 \text{ ק"ג}$$

$M_2$

$M_1$



10

1 ק"ג

$$\sum F_y = 0$$

$$\sum F_x = 0$$

$$N_{12} - M_1 g = 0$$

$$N_{12} = 10 \cdot 10$$

$$N_{12} = 100 \text{ נ}$$

2 ק"ג

$$\sum F_y = 0$$

$$\sum F_x = 0$$

$$N_{02} - M_2 g = 0$$

$$N_{02} = M_2 g + N_{12}$$

$$N_{02} = 100 + 100$$

$$N_{02} = 200 \text{ נ}$$

20

$M_1$  ק"ג

$$\sum F_x = 0$$

$$\sum F_y = M_1 a$$

$$M_1 a = N_{12} - M_1 g$$

$$10 \cdot 2.2 = N_{12} - 100$$

$$122 = N_{12}$$

$M_2$  ק"ג

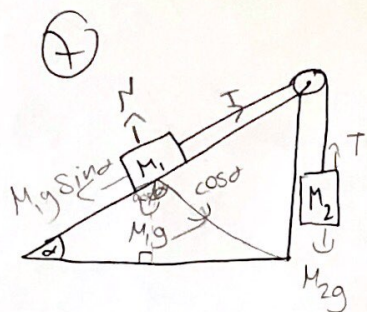
$$\sum F_x = 0$$

$$\sum F_y = M_2 a$$

$$N_{02} - M_2 g - N_{12} = M_2 a$$

$$N_{02} - 100 - 122 = 22$$

$$N_{02} = 244 \text{ נ}$$



השאלה - 7 חלק א

30)

יחס המסות (1:3)  $M_1 = M$

אנחנו

Ⓒ  $M_1: \Sigma F_x$

$$\Sigma F_x = M_1 a_x$$

$$T - \sin \alpha = M a_x$$

$$T - \sin \alpha = M a$$

$M_1: \Sigma F_y = 0$

$$N - M g \cos \alpha = 0$$

$$N = M g \cos \alpha$$

$M_2: \Sigma F_x = 0$

$M_2: \Sigma F_y = M_2 a_{2y}$

$$M_1 = M_2 = M$$

$$M_2 g - T = M_2 a_{2y}$$

$a_x = a_y \rightarrow$  שני חלקי המערכת נעים באותה תאוצה

אנחנו רוצים

$$T - \sin \alpha = M a$$

$$M_2 g - T = M a$$

Ⓐ

$$-M_1 g \sin \alpha + M_2 g = 2 M a \quad / : M$$

$$-g \sin \alpha + g = 2 a$$

התוצאה

התאוצה

$$a = \frac{g(1 - \sin \alpha)}{2}$$

② :T חישוב מתיחה

$$T - M_2 a = M_2 g - T$$

$$T = M_2 g - M_2 a$$

$$T = M_2 g - M_2 \left( \frac{g - g \sin \alpha}{2} \right)$$

$$T = \frac{2}{2} M g - M g + M g \sin \alpha$$

$$T = \frac{M g + M g \sin \alpha}{2} = \frac{M g (1 + \sin \alpha)}{2}$$

$$\boxed{T = \frac{M g (1 + \sin \alpha)}{2}}$$

③

$$\sum F_y = 0$$

$$\sum F = M_1 + M_2 (a) = M_2 g - M_1 g \sin \alpha$$

$$0 = 3)^k$$

$$0 = M_2 g - M_1 g \sin \alpha \quad / : g$$

$$0 = M_2 - M_1 \sin \alpha$$

$$0 = M_2 - M \sin \alpha$$

$$- M_2 = - M \sin \alpha$$

$$\boxed{M_2 = M \sin \alpha}$$



2)

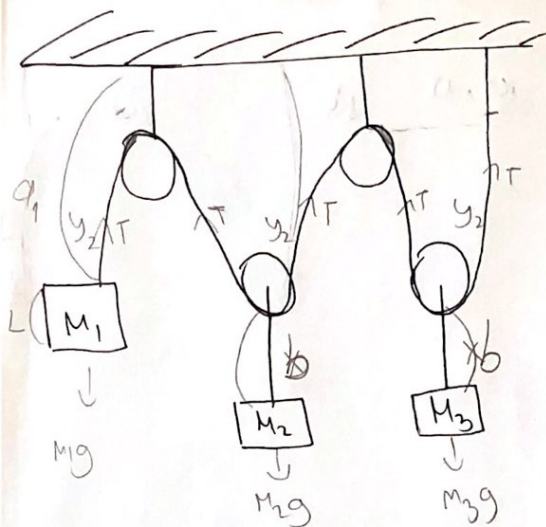
$$\sum F_y = 0 \quad : 4 \text{ } 40 \text{ } 7 \text{ } 15 \text{ } 10 \text{ } 2$$

700

$$T = M_2 g$$

התוחם נגד הנורמל

$$T = mg \sin \alpha$$



: 12 נסיעה

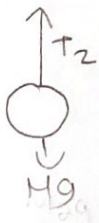
20/1

g, M

(c)

$\Delta y$  של  $\frac{\Delta y}{4}$

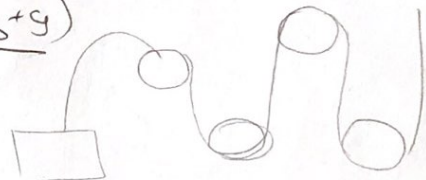
$\frac{\Delta y}{4}$



הנח  $x$

$\Sigma F_y = M_1 a_1$ $T - M_1 g = M_1 a_1$ $T = M_1 (a_1 + g)$	$\Sigma F_y = M_2 a_2$ $M_2 = 2M$ $2T - M_2 g = M_2 a_2$ $2T - 2Mg = M_2 a_2$ $2T = M a_2 + 2Mg$ $2T = 2M(a_2 + g)$	$\Sigma F_y = M_3 a_3$ $2T - M_3 g = M_3 a_3$ $2T = 3M a_3 + M_3 g$ $2T = 3M(a_3 + g)$ $T = \frac{3M(a_3 + g)}{2}$
--	--	--

הקשר בין תאוצות הדופים



$$L = (y_1 - y_2) + (y_2 - y_3) + (y_3 - y_4) + \dots$$

$$\Delta y_1 = a_1 + L$$

$$\Delta y_2 = (a_1 + L) - x$$

$$\Delta y_3 = (a_1 + L) - x$$

נראה את חוק שימור המומנט:  $L = M_1 a_1$  כלומר  $L = M_1 a_1$

$$(y_1 - L) + (a_1 + L) - x + \frac{1}{2} L = \dots$$

$$\Delta y_1 = a + L$$

$$\Delta y_2 = a + b - \frac{1}{4} L - \frac{1}{4} L = a + b - \frac{1}{2} L$$

$$\Delta y_3 = a + b - \frac{1}{4} L - \frac{1}{4} L = a + b - \frac{1}{2} L$$

$$V_1 = V$$

$$V_2 = -\frac{1}{2}V$$

$$V_3 = -\frac{1}{2}V$$

$$a_1 = a$$

$$a_2 = -\frac{1}{2}a$$

$$a_3 = -\frac{1}{2}a$$

4/7

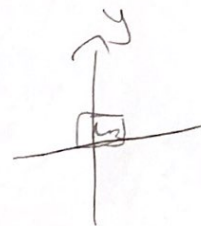
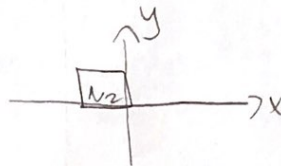
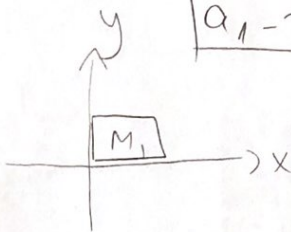
1/10

$$a_1 = -2a_2$$

$$-2a_3 = a$$

2/11 1/10

$$a_1 - 2a_2 - 2a_3 = 0$$



התנאים של y ו'ה' ו'ו'ו'

$$\textcircled{3} \quad M_1 T = m(a_2 + g)$$

$$T = M_1(a_1 + g)$$

$$ma_2 + g = m a_1 + m g$$

$$ma_2 = ma_1 \quad / : m$$

$$a_2 = a_1$$

$$ma_1 + g = T$$

$$2ma_2 + g$$

$$a_1 - 2a_2 - 2\left(\frac{2a_2 - g}{3}\right) = 0 \quad 3M(a_3 + g) = 2M(a_2 + g)$$

$$\frac{2}{3}a_2 - \frac{4a_2 + 2g}{3} = 0$$

$$\frac{-3a_2 - 4a_2 + 2g}{3} = 0 \quad / : 3$$

$$-7a_2 = -2g$$

$$a_1 = a_2 = \frac{2}{7}g \quad \frac{M}{\text{sec}^2}$$

$$a_3 = \frac{2 \cdot \frac{2}{7}g - g}{3} = -\frac{1}{7}g$$

$$a_3 = -\frac{1}{7}g \quad \frac{M}{\text{sec}^2}$$

$$mg = 2ma_2 - 3ma_3 \quad / : m$$

$$g = 2a_2 - 3a_3$$

$$3a_3 = 2a_2 - g$$

$$a_3 = \frac{2a_2 - g}{3}$$