No.

Date :

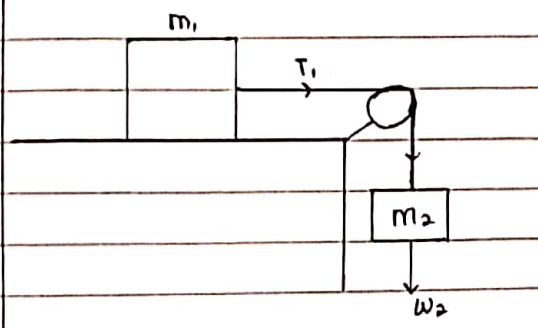
Nama : Mita Safira

NPM : 2013022044

Kelas : B

Pesawat Ganda

Persamaan Mekanika Newtonian



Massa katrol diabaikan dan bidang datar licin

⇒ Tinjau benda 1

$\Sigma F = m \cdot a$

$T_1 = m_1 \cdot a$

$T = m_1 \cdot a$

⇒ Tinjau benda 2

$\Sigma F = m \cdot a$

$w_2 - T_2 = m_2 \cdot a$

$T_2 = w_2 - m_2 \cdot a$

$T = w_2 - m_2 \cdot a$

Karena tegang tali sama besar, maka :

$m_1 \cdot a = w_2 - m_2 \cdot a$

$m_1 \cdot a + m_2 \cdot a = w_2$

$a = w_2 / m_1 + m_2$

$$a = \frac{w_2}{m_1 + m_2}$$

No.

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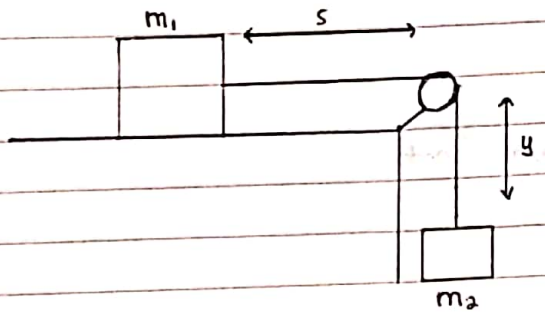
Persamaan Mekanika Lagrangan



$$T = \frac{1}{2} m_1 x_1^2 \text{ y } \frac{1}{2} m_2 y_2^2$$

$$V = m_1 g y_1 + m_2 g y_2$$

$$x_1 = \frac{dx_1}{dt}$$

$$x_1 = s \Rightarrow \dot{x}_1 = -\dot{s}$$

$$y_2 = -(L-s) \Rightarrow \dot{y}_2 = \dot{s}$$

$$T = \frac{1}{2} m_1 (-\dot{s})^2 + \frac{1}{2} m_2 \dot{s}^2 = \frac{1}{2} (m_1 + m_2) \dot{s}^2$$

$$V = m_2 g (s-l)$$

$$L = \frac{1}{2} (m_1 + m_2) \dot{s}^2 - m_2 g (s-L)$$

$$\frac{\partial L}{\partial s} - \frac{d}{dt} \frac{dL}{ds} = 0$$

$$\frac{dL}{ds} = -m_2 g$$

$$\frac{dL}{d\dot{s}} = \frac{2}{2} (m_1 + m_2) \dot{s}$$

$$\frac{d}{dt} \frac{dL}{d\dot{s}} = (m_1 + m_2) \ddot{s}$$

$$-m_2 g - (m_1 + m_2) \ddot{s} = 0$$

$$s = \frac{-m_2 g}{m_1 + m_2}$$