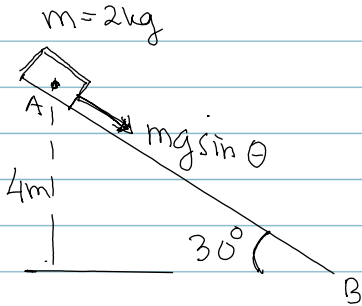


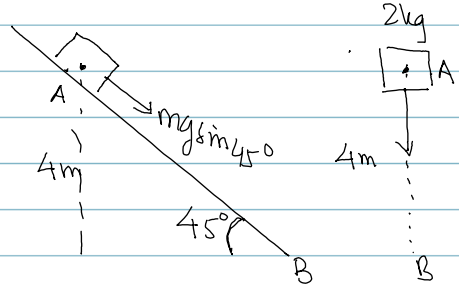
Gaya Konservatif



$$AB = \frac{4}{\sin 30^\circ} = 8\text{ m}$$

$$F = 2 \cdot 10 \cdot \frac{1}{2} = 10\text{ N}$$

$$W_{AB} = F \cdot (AB) \\ = 10 \cdot 8 = \underline{\underline{80\text{ J}}}$$

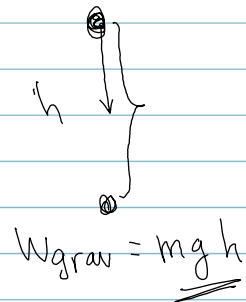
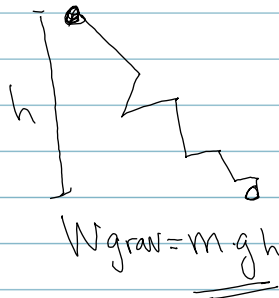
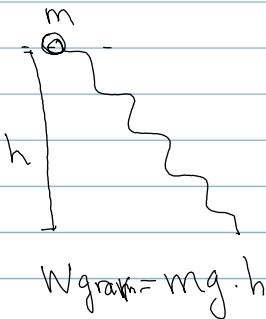


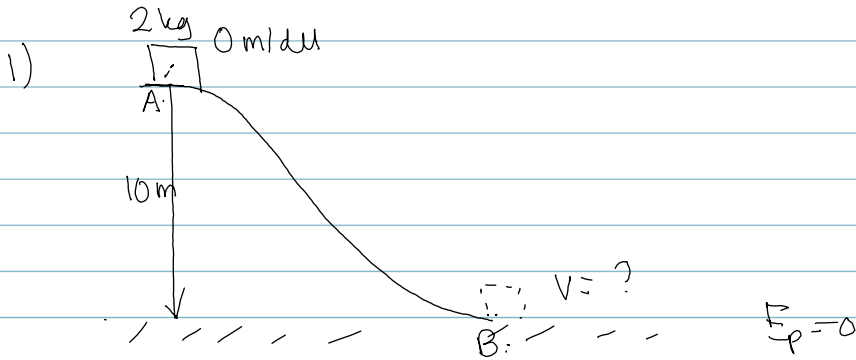
$$AB = \frac{4}{\sin 45^\circ} = \frac{8}{\sqrt{2}}\text{ m}$$

$$F = 2 \cdot 10 \cdot \frac{1}{2} \sqrt{2} = 10\sqrt{2}\text{ N}$$

$$W_{AB} = F \cdot (AB) \quad W_{AB} = 2 \cdot 10 \cdot 4 \\ = 10\sqrt{2} \cdot \frac{8}{\sqrt{2}} \quad = 80\text{ J} \\ = \underline{\underline{80\text{ J}}}$$

gaya konservatif = gaya yang usahanya tidak tergantung pada lintasanya





Cara I :

$$E_{kA} = 0$$

$$E_{pA} = 2 \cdot 10 \cdot 10 = 200 \text{ J}$$

$$E_{kB} = \frac{1}{2} m v^2 = \frac{1}{2} \cdot 2 \cdot v^2 = v^2$$

$$E_{pB} = 0$$

$$200 = v^2$$

$$v = \sqrt{200} \text{ m/det}$$

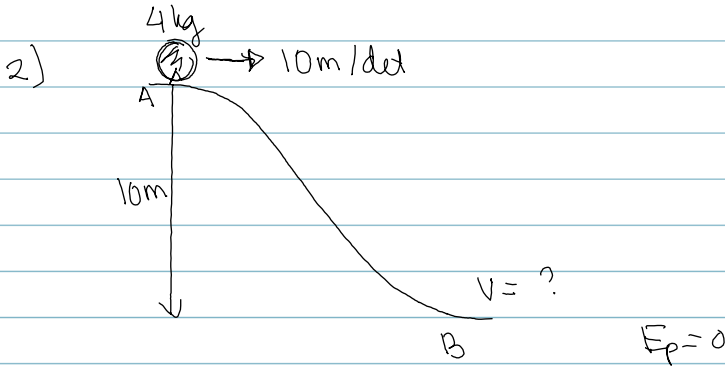
Cara II

$$W_{AB} = m \cdot g \cdot h$$

$$\frac{1}{2} m v^2 = 2 \cdot 10 \cdot 10$$

$$\frac{1}{2} \cdot 2 \cdot v^2 = 200$$

$$v = \sqrt{200} \text{ m/det}$$



cara I

$$4 \cdot 10 \cdot 10 = 400 \text{ J} = E_{pA}$$
$$E_{kA} = \frac{1}{2} m v_A^2 = \frac{1}{2} \cdot 4 \cdot 10^2$$
$$= 200 \text{ J}$$

$$E_{pB} = 0$$

$$E_{kB} = 400 + 200 = 600$$

$$\frac{1}{2} m v_B^2 = 600$$

$$\frac{1}{2} \cdot 4 \cdot v_B^2 = 600$$

$$v_B = \sqrt{300} = \underline{\underline{10\sqrt{3} \text{ m/det}}}$$

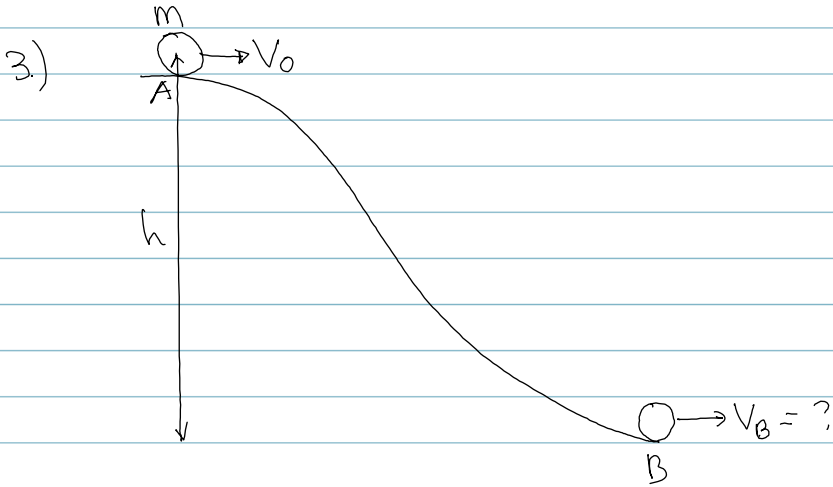
cara II

$$\frac{1}{2} m v_A^2 + m g \cdot (10) = \frac{1}{2} m v_B^2$$

$$\frac{1}{2} \cdot 10^2 + 10 \cdot 10 = \frac{1}{2} v_B^2$$

$$300 = v_B^2$$

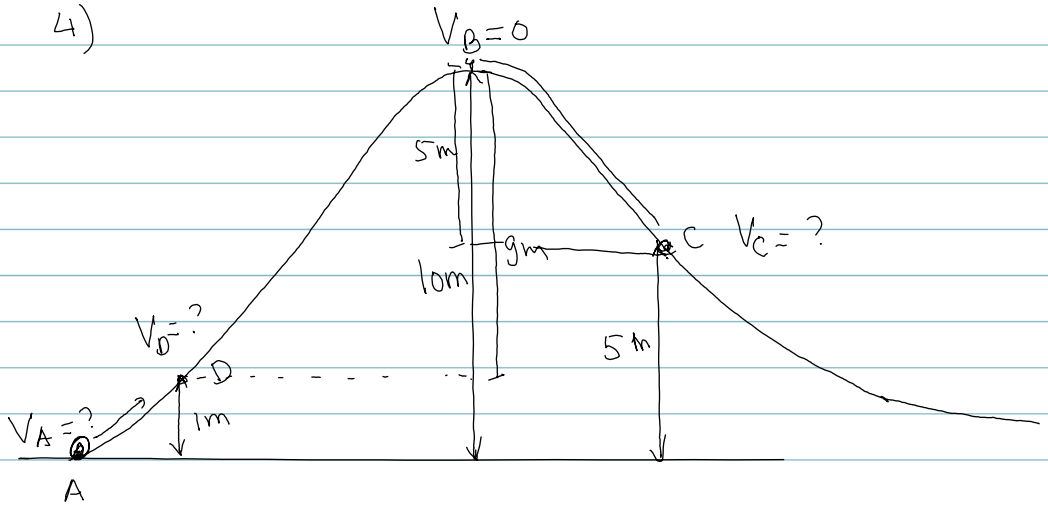
$$v_B = \underline{\underline{10\sqrt{3} \text{ m/det}}}$$



$$\frac{1}{2} m V_0^2 + mgh = \frac{1}{2} m V^2$$

$$V^2 = V_0^2 + 2gh$$

$$V = \sqrt{V_0^2 + 2gh}$$



Cara I

$$E_{pA} = 0$$

$$E_{pB} = m \cdot g \cdot (10)$$

$$E_{kA} = \frac{1}{2} m V_A^2$$

$$E_{kB} = 0$$

$$\frac{1}{2} m V_A^2 = m \cdot g \cdot (10)$$

$$\frac{1}{2} \cdot V_A^2 = 10 \cdot 10$$

$$V_A^2 = 200$$

$$V_A = \sqrt{200}$$

$$= \underline{\underline{10\sqrt{2} \text{ m/det}}}$$

Cara II

$$\frac{1}{2} m V_A^2 = m \cdot g \cdot h$$

$$V_A = \sqrt{2gh} = \sqrt{2 \cdot 10 \cdot 10}$$
$$= \sqrt{200} = \underline{\underline{10\sqrt{2} \text{ m/det}}}$$

$$\frac{1}{2} m V_D^2 = m \cdot g \cdot (g)$$

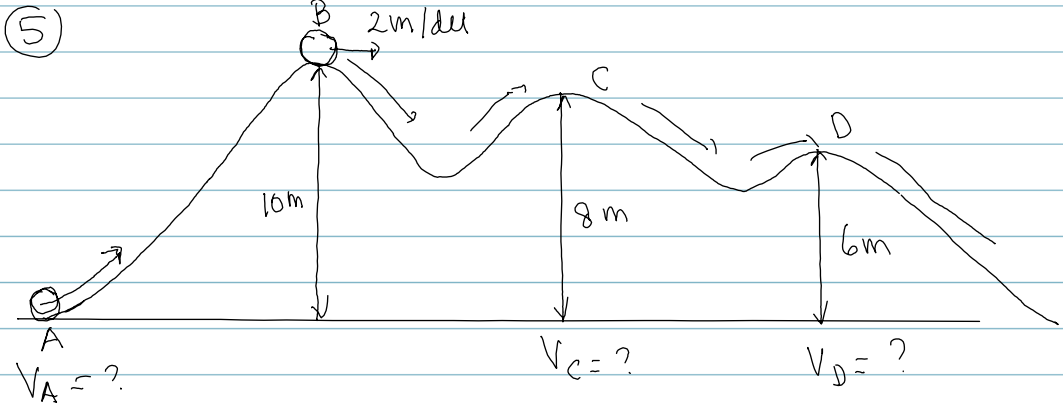
$$V_D = \sqrt{2 \cdot 10 \cdot 9} = \sqrt{180}$$
$$= 3\sqrt{20} = \underline{\underline{6\sqrt{5} \text{ m/det}}}$$

BC

$$m \cdot g \cdot (5) = \frac{1}{2} m V_C^2$$

$$V_C = \sqrt{2 \cdot 10 \cdot 5} = \underline{\underline{10 \text{ m/det}}}$$

(6)



$$E_{pA} = 0$$

$$E_{pB} = m \cdot g \cdot h = m \cdot g \cdot 10$$

$$E_{kA} = \frac{1}{2} m V_A^2$$

$$E_{kB} = \frac{1}{2} m V_B^2$$

$$\frac{1}{2} m V_A^2 = \frac{1}{2} m V_B^2 + m g \cdot 10$$

$$V_A^2 = 2^2 + 2 \cdot 10 \cdot 10$$

$$= 204$$

$$V_A = \sqrt{204} \text{ m/det}$$

$$\frac{1}{2} m V_B^2 + m g (10)$$

$$= \frac{1}{2} m V_C^2 + m g (8)$$

$$\frac{1}{2} \cdot 2^2 + 10 \cdot 10$$

$$= \frac{1}{2} \cdot V_C^2 + 10 \cdot 8$$

$$102 = \frac{1}{2} V_C^2 + 80$$

$$\frac{1}{2} V_C^2 = 22$$

$$V_C = \sqrt{44} \text{ m/det}$$

$$\frac{1}{2} m V_B^2 + m g (10)$$

$$= \frac{1}{2} m V_D^2 + m g (6)$$

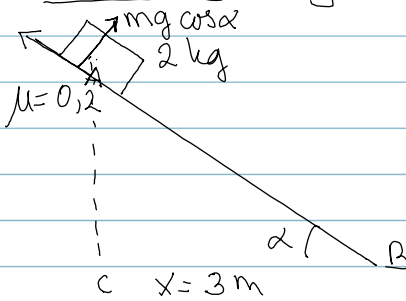
$$\frac{1}{2} \cdot 2^2 + 100 = \frac{1}{2} \cdot V_D^2 + 60$$

$$84 = V_D^2$$

$$V_D = \sqrt{84} \text{ m/det}$$

Apakah gaya gesek itu gaya konservatif

6).



$$\tan \alpha = \frac{3}{4} \quad W_{\text{gesek}} ?$$

$$\tan \alpha = \frac{4}{3} ?$$

$$f = \mu mg \cos \alpha$$

$$W_{\text{gesek}} = f \cdot (AB)$$

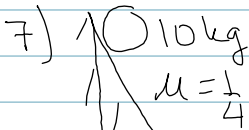
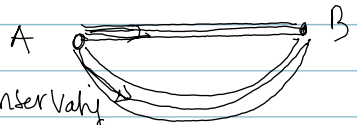
$$= \mu mg \cos \alpha \left(\frac{3}{\cos \alpha} \right)$$

$$= 0,2 \cdot 2 \cdot 10 \cdot 3$$

$$= \underline{\underline{12 \text{ Joule}}}$$

$$W_{\text{gesek}} = \mu mg x$$

gaya gesek bukan gaya konservatif

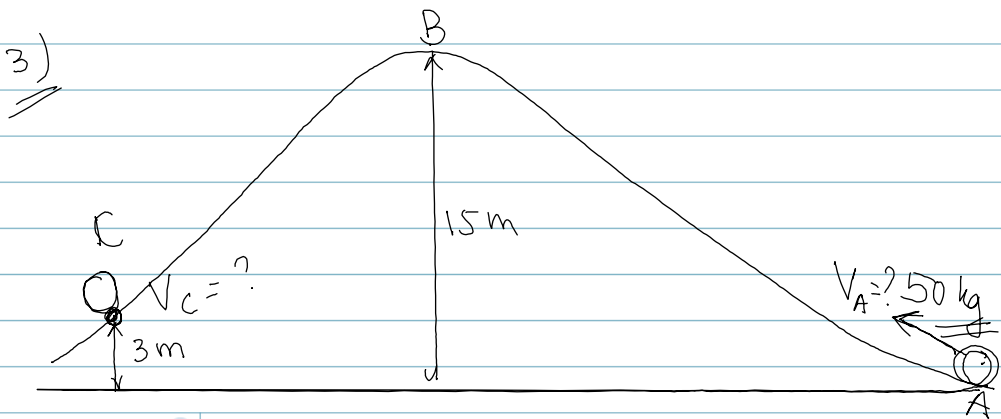
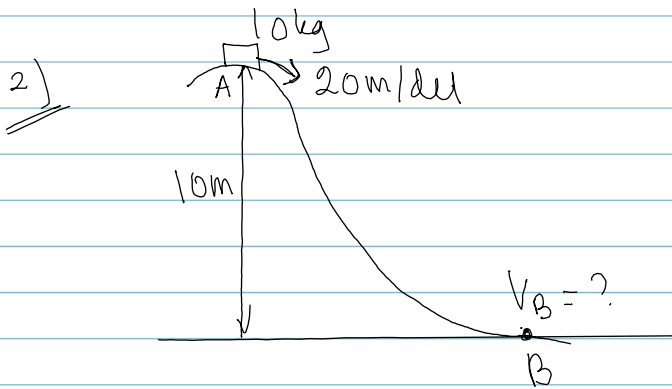
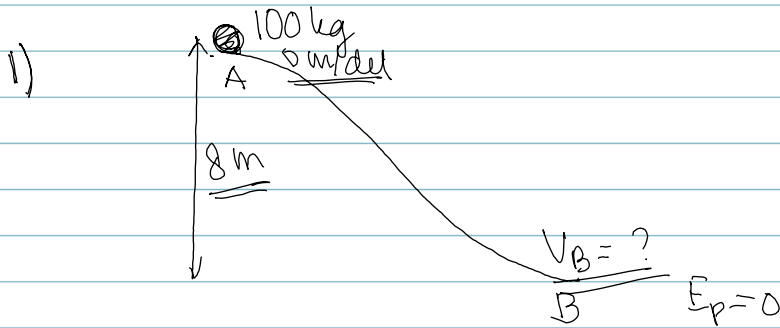


$$W_{\text{gesek}} = \mu mg x$$

$$= \frac{1}{4} \cdot 10 \cdot 10 \cdot 10$$

$$= \underline{\underline{250 \text{ J}}}$$

Latihan gaya konservatif



4)

