

№1.

Берілгені:

$$v_1 = 24 \text{ м/с}$$

$$\alpha = 30^\circ$$

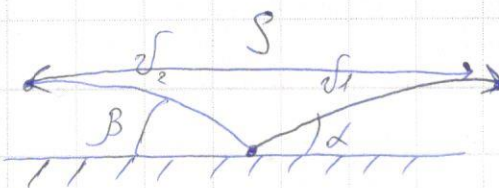
$$v_2 = 32 \text{ м/с}$$

$$\beta = 60^\circ$$

$$t = 1,5 \text{ с}$$

$$S = ?$$

Шешуі:



$$t_1 = \frac{2v_{01}\sin\alpha}{g} \Rightarrow t_1 = \frac{2 \cdot 24 \cdot \frac{1}{2}}{10} = 2,4 \text{ с} > 1,5 \text{ с}$$

$$t_2 = \frac{2v_{02}\sin\beta}{g} \Rightarrow t_2 = \frac{2 \cdot 32 \cdot \frac{\sqrt{3}}{2}}{10} = 3,2 \cdot \sqrt{3} \text{ с} > 1,5 \text{ с}$$

$$t_1 \text{ және } t_2 > t$$

$$x_1 = v_1 \cos\alpha t$$

$$y_1 = v_1 \sin\alpha t - \frac{gt^2}{2}$$

$$x_2 = v_2 \cos\beta t$$

$$y_2 = v_2 \sin\beta t - \frac{gt^2}{2}$$

$$S = \sqrt{(x_1 + x_2)^2 + (y_2 - y_1)^2}$$

$$S = \sqrt{(v_1 \cos\alpha t + v_2 \cos\beta t)^2 + (v_2 \sin\beta t - \frac{gt^2}{2} - v_1 \sin\alpha t + \frac{gt^2}{2})^2}$$

$$S = \sqrt{t^2 (v_1 \cos\alpha + v_2 \cos\beta)^2 + t^2 (v_2 \sin\beta - v_1 \sin\alpha)^2}$$

$$S = t \sqrt{v_1^2 \cos^2\alpha + 2v_1 v_2 \cos\alpha \cos\beta + v_2^2 \cos^2\beta + v_2^2 \sin^2\beta - 2v_1 v_2 \sin\alpha \sin\beta + v_1^2 \sin^2\alpha} =$$

$$= t \sqrt{v_1^2 (\cos^2\alpha + \sin^2\alpha) + v_2^2 (\cos^2\beta + \sin^2\beta)} = t \sqrt{v_1^2 + v_2^2} = 1,5 \cdot 40 = 60 \text{ м}$$

$$\text{Жауабы: } S = 60 \text{ м}$$

Парақтың артқы жағын толтырмаңыз / Обратную сторону листа не заполнять

№2.

Берілгені:

$$T_3 = T$$

$$T_2 = 2T$$

$$T_1 = \alpha^2 T$$

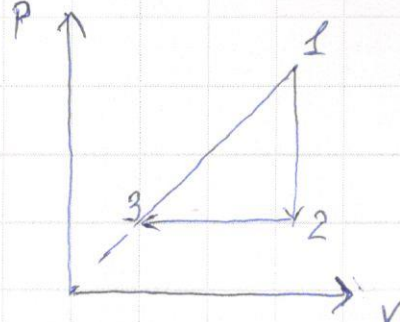
$$\alpha = 4$$

$$\eta = ?$$

Шешуі:

$$\eta = \frac{A}{Q} \cdot 100\%$$

$$Q = A + \Delta U$$



$$A_{3 \rightarrow 1} = 0,5 \nu R (T_1 - T_3)$$

$$\Delta U_{3 \rightarrow 1} = 1,5 \nu R (T_1 - T_3)$$

$$Q_{3 \rightarrow 1} = A_{3 \rightarrow 1} + \Delta U_{3 \rightarrow 1} = 0,5 \nu R (T_1 - T_3) + 1,5 \nu R (T_1 - T_3)$$

$$Q_{3 \rightarrow 1} = 2 \nu R (T_1 - T_3) = 2 \nu R T (\alpha^2 - 1)$$

$$A = A_{3 \rightarrow 1} + A_{2 \rightarrow 3} = 0,5 \nu R (T_1 - T_3) + \nu R (T_3 - T_2)$$

$$A = 0,5 \nu R T (\alpha - 1)^2$$

$$\eta = \frac{A}{Q_{3 \rightarrow 1}} = \frac{0,5 \nu R T (\alpha - 1)^2}{2 \nu R T (\alpha^2 - 1)} = 0,25 \cdot \frac{3^2}{15} = 0,15 \cdot 100\% = 15\%$$

$$\text{Жауабы: } \eta = 15\%$$



Берілгені:

$$a = 3 \text{ м}$$

$$B = 1 \text{ Тл}$$

$$R = 10 \text{ см}$$

$$q = ?$$

№3.

Шешуі:

$$F = B \cdot l \cdot \cos \alpha$$

q

№4

Шешуі:

Берілгені:

$$g_2 = 9,78 \text{ м/с}^2$$

$$g_n = 9,83 \text{ м/с}^2$$

$$\frac{T_2}{T_n} = ?$$

деп тоғности возьми  $l=1\text{ м}$ .

$$T = 2\pi \sqrt{\frac{l}{g}}$$

$$T_2 = 2\pi \sqrt{\frac{1}{9,78}} = 2\pi \sqrt{0,102} = 2\text{ с}$$

$$T_n = 2\pi \sqrt{\frac{1}{9,83}} = 2\pi \sqrt{0,101} \approx 1,99\text{ с}$$

$$\frac{T_2}{T_n} = \frac{2}{1,99} \approx 1,005$$

Жауабы: Бір мәйекте 1,005-ке оғос шүретін баада.