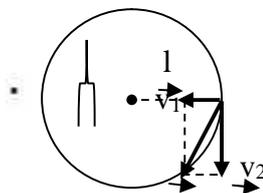


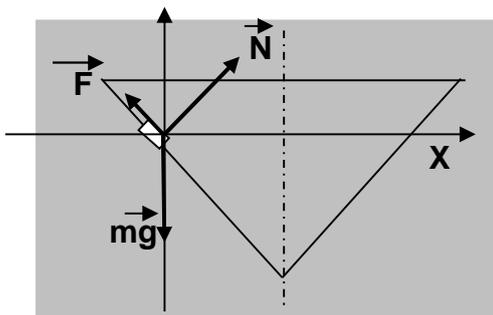
1

$$\begin{array}{l} v_1 = 7 \text{ /} \\ l = 6 \\ = 18 \quad \cdot^{-1} = 0,3 \cdot^{-1} \\ \hline v \text{ .- ?} \end{array}$$



$$v_2 = 2 \quad l = 6,28 \cdot 0,3 \cdot 6 = 11,3 \text{ /} \\ \hline 13,3 \text{ /}$$

2.



$$\vec{m}\vec{a} = \vec{m}\vec{g} + \vec{N} + \vec{F}; \quad \text{OX: } m \cdot r = N \cos \alpha - \mu N \sin \alpha \\ \text{OY: } 0 = N \sin \alpha + \mu N \cos \alpha - mg$$

3.

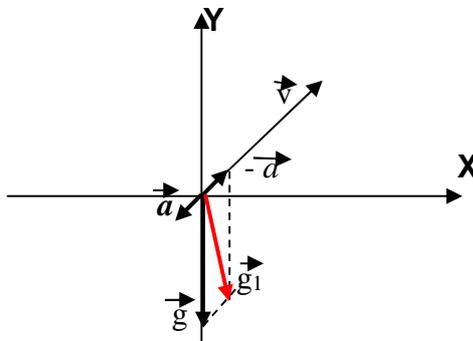
$$\begin{array}{l} m = 1,8 \cdot 10^{-27} \\ q = 1,6 \cdot 10^{-19} \\ d = 4 \\ R = 3 \\ v_1 = 800 \text{ /} \\ v_2 = 100 \text{ /} \\ \hline Q = ? \end{array}$$

$$\left\{ \begin{array}{l} F_1 = k \frac{Qq}{\sqrt{R^2 + d^2}} \\ F_2 = k \frac{Qq}{R} \end{array} \right.; \quad \frac{m \cdot v_1^2}{2} + k \frac{Qq}{\sqrt{R^2 + d^2}} = \frac{m \cdot v_2^2}{2} + k \frac{Qq}{R}; \\ \frac{m(v_1^2 - v_2^2)}{2} = kQq \left( \frac{1}{R} - \frac{1}{\sqrt{R^2 + d^2}} \right); \quad Q = \frac{m(v_1^2 - v_2^2)}{2kq \left( \frac{1}{R} - \frac{1}{\sqrt{R^2 + d^2}} \right)}; \quad Q = 30$$

: 30

4.

$$\begin{array}{l} \alpha = 45^\circ \\ a = 0,14g \\ \hline n = ? \end{array}$$



$$Y: g_y = g - a \sin \alpha = 10 - 1,4 \cdot 0,707 = 9,01 \text{ /}^2 \\ \text{OX: } g_x = a \cos \alpha = 1,4 \cdot 0,707 = 0,99 \text{ /}^2. \quad g_1 = 9,06 \text{ /}^2 \\ T_1 = 2f \sqrt{\frac{l}{g}}; T_2 = 2f \sqrt{\frac{l}{g_1}}; n = \frac{T_2}{T_1} = \sqrt{\frac{g}{g_1}} = \sqrt{\frac{10}{9,06}} = 1,05. \quad : 1,05.$$

5.

1 ,