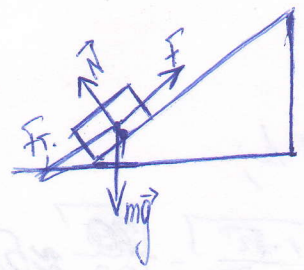


1.

Ф-10-11



$\vec{F}_T + \vec{F} = A$  ?

$N + mg = 0$ .

$0x: F_T - F = A$ .

$0y: N - mg = 0 \Rightarrow N = mg$ .

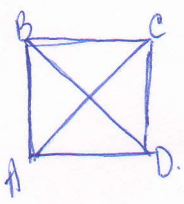
$F_T = mgh; F = \frac{mv^2}{2}$

$mgh - \frac{mv^2}{2} = A \Rightarrow \frac{mv^2}{2} = mgh - A \Rightarrow v^2 = \frac{2(mgh - A)}{m} \Rightarrow v = \sqrt{\frac{2(mgh - A)}{m}}$

Ответ:  $\sqrt{\frac{2(mgh - A)}{m}}$

5.

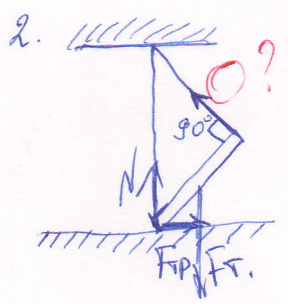
$R_0 = 1 \text{ Ом}$ .



соединение между A и C последоват.  $\Rightarrow$   
 $R_{AC} = R_0 \sqrt{2} = 1\sqrt{2} \text{ Ом} \approx 1,4 \text{ Ом}$ .

$R_{AC} = ?$

Ответ:  $\sqrt{2} \text{ Ом} / 1,4 \text{ Ом}$ .



$F_T = mg$   
 $N + F_{Tp} + T + mg = 0$   
 $T \cdot L - mg \cdot \frac{1}{2} \cos 2\alpha = 0$   
 $T = \frac{mg}{2} \cdot \cos 2\alpha$

$0x: F_{Tp} - T \sin \alpha = 0$   
 $0y: N + T \cos \alpha - mg = 0$   
 $N = mg - T \cos \alpha = mg \left( 1 - \frac{\cos^2 \alpha}{2} \right)$

$F_{Tp} = \mu \cdot mg \left( 1 - \frac{\cos^2 \alpha}{2} \right) = \frac{mg \cdot \cos \alpha \cdot \sin \alpha}{2}$

$\mu = \frac{\cos 2\alpha - \frac{1}{2} \sin^2 2\alpha}{(2 - \cos^2 \alpha)^2} = \frac{1}{3}$

Ответ:  $\frac{1}{3}$

3.  $r_0 = 10 \text{ cm} = 0,1 \text{ m}$   
 $L = 0,5 \text{ m}$   
 $\alpha = 45^\circ$



$$\vec{F} = m\vec{g} \Rightarrow m\vec{a} + m\vec{g} + \vec{T}$$

$$Ox: ma_y = T \cdot \sin \alpha$$

$$Oy: T \cos \alpha - mg = 0$$

$$T = \frac{mg}{\cos \alpha}; \quad ma_y = mg \tan \alpha; \quad \text{zge } a = \omega^2 R = g \tan \alpha;$$

$$\text{zge } R = r + L \sin \alpha \Rightarrow \omega = \sqrt{\frac{g \tan \alpha}{r + L \sin \alpha}} \Rightarrow \sqrt{\frac{10 \cdot 1 \cdot \sqrt{2}}{0,1 + 0,5 \cdot \sqrt{2}}} = \sqrt{0,8} \approx 0,89 \text{ rad/s}$$

Answer: 5 e