10

.

– 3   20   .

1

$x = y = 0$ v₀

₁   ₂   (.1).

?   t?   -

.

.1

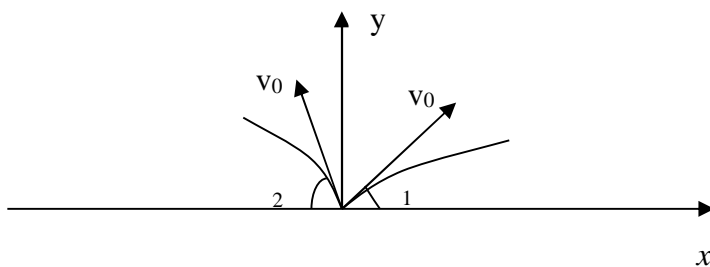x   y   :

$$v_{1y} = v_0 \sin a_1 - gt \ , \quad v_{2y} = v_0 \sin a_2 - gt ,$$

$$v_{1x} = v_0 \cos a_1, \qquad v_{1y} = -v_0 \cos a_2 .$$

u –   .

$$u_y = v_0 \sin a_1 - gt - v_0 \sin a_2 + gt = v_0(\sin a_1 - \sin a_2) ,$$

$$u_x = v_0(\cos a_1 + \cos a_2) .$$

,

$$u = \sqrt{u_x^2 + u_y^2} = 2v_0 \cos((a_1 + \Gamma_2)/2).$$

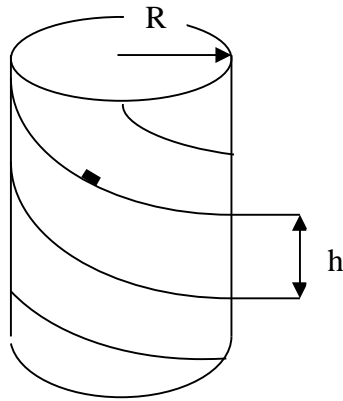.   t

$$S = 2v_0 t \cos((a_1 + \Gamma_2)/2).$$

– **80.**   ,   .

60   .   .   -   .

30   .   .

15   ,   ,   .

2

$a,$

n- $R,$ h (.2).   ,

R

h

.2

—

R   -

.   v   -
:

$v_1 = v\cos\Gamma$,   , $v_2 = v\sin\Gamma$,   (.

). Γ -   ,   .

-

.   ,

,

$$a_{1n} = \frac{v_1^2}{R} = \frac{v^2(\cos^2\Gamma)}{R}.$$

, $a_{2n} = 0$.

$$a = \sqrt{a_{1t}^2 + a_{2t}^2 + a_{1n}^2} ,$$

a_{1t} a_{2t} -   ,

.   , $a_t = \sqrt{a_{1t}^2 + a_{2t}^2}$.

,   ,   ,   -
. nh -

2 Rn.

,

$$a_t = g \cdot \sin\Gamma = gh / \sqrt{h^2 + 4f^2R^2} .$$

a_{1n} v

$$\frac{mv^2}{2} = mghn .$$

,

$$v^2 = 2ghn, \quad a_{1n} = 8f^2 nhgR / (h^2 + 4f^2R^2).$$

,

$$a = \frac{gh\sqrt{h^2 + 4f^2R^2 + 64f^4n^2R^2}}{h^2 + 4f^2R^2}.$$

– 100.

80 .

40 .

30 .

20 ,

3

$= 1$. $S = 10$ ^{2},

$= 1$. $\Delta T = 10$. ?

. $\sim = 28 \cdot 10^{-3}$ / .

.

: Mg -

p_oS $pS,$ -

S . :

$$Mg + p_oS = pS.$$

,

$$p = \frac{Mg}{S} + p_0.$$

:

$$\frac{V_1}{T_1} = \frac{V_2}{T_2},$$

$V_1 = Sh_1$ $V_2 = Sh_2 -$, .

$$\Delta h = h_2 - h_1,$$

$$\Delta h = \frac{V_2 - V_1}{S} = \frac{V_1}{ST_1}\Delta T.$$

:

$$pV = \frac{m}{\sim}RT_1.$$

,

$$\Delta h = \frac{mR\Delta T}{\sim\left(\dfrac{Mg}{S} + p_0\right)\cdot S} = \frac{mR\Delta T}{\sim(Mg + p_0S)} = 2{,}7$$

– 80. , .

60 . . -

40 .

30 .

20 ,

4

220 .

$V = 500$ ³, $h = 20$.

$y = 44\%$?

1000 / ³.

$$y = \frac{A}{A} .$$

$$A = mgh = ...Vgh .$$

$$A = P \cdot \Delta t = I \cdot U \cdot \Delta t .$$

$$y = \frac{...Vgh}{IU\Delta t} .$$

$I \cdot \Delta t ,$

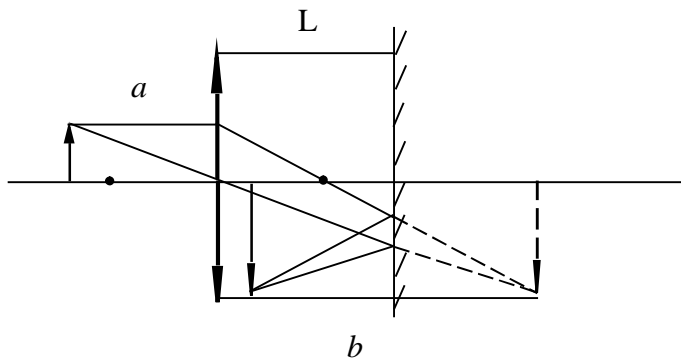$$q = \frac{...Vgh}{yU} = 10^6 .$$

– 60.

50 .

30 ,

5

$a = 9$

$F = 6$.

$L = 10$.

$$\frac{1}{F} = \frac{1}{b} + \frac{1}{a} .$$

$b = 18$ $b - L = 8$

, ,

:

$$\frac{1}{F} = \frac{1}{a_1} - \frac{1}{b_1} \; .$$

b_1

$$b_1 = \frac{a_1 \cdot F}{F - a_1} = 3 \qquad .$$

– 80. , , **-**

60 . , ,

-

30 . .

20 , , .