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1.4.1. .

$m = 310$

$F = 1,25$.

h .

$\rho_1 = 2,5 / ^3,$
 $g = 10 / ^2.$

$\rho_2 = 1 / ^3.$

1.4.1. .

$F = \rho_2 a^3 g,$ $a -$

$a = \sqrt[3]{\frac{F}{\rho_2 g}} = 5$.

$m = (a^3 - b^3)\rho_1,$ $b -$

$b = \sqrt[3]{\frac{F}{\rho_2 g} - \frac{m}{\rho_1}} = 1$.

$h = \frac{a - b}{2}$.

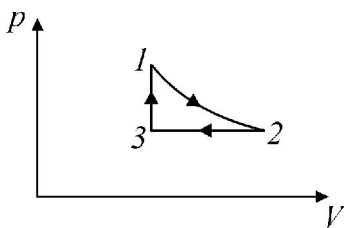
$\therefore h = \frac{1}{2} \cdot \left(\sqrt[3]{\frac{F}{\rho_2 g}} - \sqrt[3]{\frac{F}{\rho_2 g} - \frac{m}{\rho_1}} \right) = 2$.

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3.3.1.

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$A = 14$,

$2 - 3$

1 - 2 - 3 - 1, pV-

1 - 2

1 - 2

$Q = 10$.

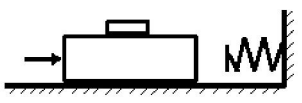
3.3.1.

$A = Q_{12} + Q_{23} + Q_{31}$.

1 - 2

$Q_{12} = A$, $Q_{23} = -Q$, $Q_{31} = \frac{3}{5}Q$, $T_1 = T_2$, $Q_{23} = -Q$, $Q_{31} = \frac{3}{5}Q$.
 $Q_{31} = \frac{3}{2}vR(T_1 - T_3)$, $A = A - Q + \frac{3}{5}Q = A - \frac{2}{5}Q$.
 $Q = Q_{31} + Q_{12} = \frac{3}{5}Q + A$, $\eta = \frac{A}{Q} = \frac{A - 0,4Q}{A + 0,6Q}$.
 $\eta = \frac{A - 0,4Q}{A + 0,6Q} = 0,5$, 50%.

2.4.1.

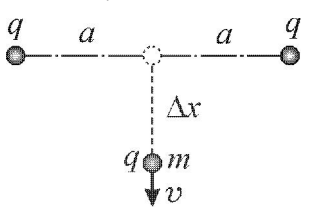


V_0 , $\mu = 0,1$, $\tau = 3,1$, $g = 10 \text{ / } ^2$.

2.4.1.

$F^{\max} = ma_{\max}$, μmg , $a_{\max} = V_0 = V_0 /$, $V_0 < \frac{\mu g \tau}{\pi}$ 1 /c.

4.1.1.



$q = 10^{-9}$, $a = 3$, $\Delta x = 4$, $m = 1$, $\epsilon_0 = 8,85 \cdot 10^{-12}$ / .

4.1.1.

q_1

q_2 , r , $W = \frac{q_1 q_2}{4\pi\epsilon_0 r}$, W_{13}

$$W_{13} + 2 \frac{q^2}{4\pi\epsilon_0 a} = W_{13} + 2 \frac{q^2}{4\pi\epsilon_0 \sqrt{a^2 + (\Delta x)^2}} + \frac{mv^2}{2}$$

$$v = \frac{q}{\sqrt{\pi\epsilon_0 ma}} \sqrt{\frac{\sqrt{a^2 + (\Delta x)^2} - a}{\sqrt{a^2 + (\Delta x)^2}}} \approx 2,2 \text{ / .}$$

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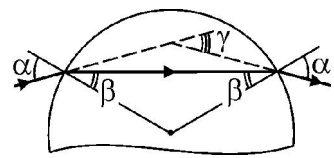
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5.2.1.

$$\alpha = 45^\circ$$

n , $\gamma = 30^\circ$.

5.2.1.



$$\gamma = 2(\alpha - \beta), \quad \alpha -$$

» $\beta = \alpha - \gamma/2$

$$n = \frac{\sin \alpha}{\sin \beta}$$

: $n = \frac{\sin \alpha}{\sin(\alpha - \gamma/2)} = \sqrt{2} \approx 1,41$.