

Задача №1

$$v_1 = 5 \frac{m}{c} \quad v = \frac{s}{t} \Rightarrow t_3 = \frac{s_3}{v_3}$$

$$t_1 = 20c \quad s_3 = s$$

$$v_2 = 4 \frac{m}{c} \quad s = v_1 \cdot t_1 + v_2 \cdot t_2$$

$$t_2 = 20c \quad \Downarrow$$

$$v_3 = 3 \frac{m}{c} \quad s \cdot t_3 = \frac{v_1 \cdot t_1 + v_2 \cdot t_2}{v_3}$$

$$t_3 = ?$$

Решение:

$$t_3 = \frac{5 \frac{m}{c} \cdot 20c + 4 \frac{m}{c} \cdot 20c}{3 \frac{m}{c}} = 60c$$

100

Ответ: 60c = t3

Задача №3

$$\rho = 0,5u \quad p = \frac{F}{s}; F = p \cdot s; s = a \cdot a; V = a \cdot a \cdot a$$

$$p = 600 \frac{Pa}{m^2} \quad F = p; p = mg; \cancel{p}$$

$$\rho = 7100 \frac{kg}{m^3} \quad m = \frac{p}{g} \Rightarrow \frac{p \cdot s}{g} \Rightarrow \frac{p \cdot a \cdot a}{g} = m$$

$$g = 10 \frac{m}{c^2} \quad \Downarrow$$

$$v_n = ? \quad V = \frac{m}{\rho} \Rightarrow V = \frac{p \cdot a \cdot a}{g \cdot \rho}$$

$$V_n = V = V + V_n$$

$$V_m = \frac{V_n}{V_0}; V_0 = a \cdot a \cdot a$$

$$V_n = \frac{V_m}{V_0} \cdot 100\%$$

$$V_m = \frac{p \cdot a \cdot a}{g \cdot \rho \cdot a \cdot a} \cdot 100\% \quad \Downarrow$$

$$V_n = \frac{\frac{p \cdot a \cdot a}{g \cdot \rho \cdot a \cdot a} \cdot 100\%}{a^3}$$

Решение:

$$V_n = \frac{600 \frac{Pa}{m^2} \cdot 0,5u \cdot 0,5u}{10 \frac{m}{c^2} \cdot 7100 \frac{kg}{m^3} \cdot 0,5u^3} \cdot 100\% = \frac{(0,5u)^3 - 600 \frac{Pa}{m^2} \cdot (0,5u)^2}{(0,5u)^3 \cdot 10 \frac{m}{c^2} \cdot 7100 \frac{kg}{m^3}} \cdot 100\% =$$

$$V_m = \frac{600 \frac{Pa}{m^2} \cdot 0,5u \cdot 0,5u}{10 \frac{m}{c^2} \cdot 7100 \frac{kg}{m^3} \cdot 0,5u \cdot 0,5u \cdot 0,5u} \cdot 100\%$$

$$V_0 = 0,5u \cdot 0,5u \cdot 0,5u = 0,125u^3$$

$$s = 0,5u \cdot 0,5u = 0,25u^2$$

$$A = 600 \frac{Pa}{m^2} \cdot 0,25u^2 = 150N$$

$$m = \frac{150N}{10 \frac{m}{c^2}} = 15kg$$

$$V_n = \frac{0,123u^3}{0,125u^3} \cdot 100\% = 98,4\%$$

$$V = \frac{15}{7100} = 0,002u^3$$

$$V_n = 0,125u^3 - 0,002u^3 = 0,123u^3$$

Ответ: 98,4% = Vn

100

Задача №4.

$$\begin{array}{l}
 m_1 = m_2 = m_3 \\
 c_1 = c_2 = c_3 \\
 t = ?
 \end{array}
 \left. \begin{array}{l}
 Q_1 + Q_2 = 0 \\
 cm(t_1 - t_I) + cm(t_1 - t_{II}) = 0 \\
 (t_1 - t_I) + (t_1 - t_{II}) = 0
 \end{array} \right\}$$

$$2t_1 = t_I + t_{II}$$

$$t_1 = \frac{t_I + t_{II}}{2}$$

$$Q_1 + Q_3 = 0$$

$$(t_2 - t_I) + (t_2 - t_{III}) = 0$$

$$2t_2 = t_I + t_{III}$$

$$t_2 = \frac{t_I + t_{III}}{2}$$

$$Q_2 + Q_3 = 0$$

$$(t_3 - t_{II}) + (t_3 - t_{III}) = 0$$

$$2t_3 = t_{II} + t_{III}$$

$$t_3 = \frac{t_{II} + t_{III}}{2}$$

$$Q_1 + Q_2 + Q_3 = 0$$

$$(t - t_I) + (t - t_{II}) + (t - t_{III}) = 0$$

$$3t = t_I + t_{II} + t_{III}$$

$$t = \frac{t_I + t_{II} + t_{III}}{3}$$

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