PADRÃO DE RESPOSTAS

Questão	Resposta
1	$v = 1188 \text{ m/s} = \frac{1188}{3,6} \text{ m/s} = 330 \text{ m/s}$ $v = \lambda f$ $\lambda = \frac{330}{2640} = 0,125 \text{ m}$
2	$\text{V} = \text{R}_3 \times i_3 \quad \rightarrow \quad i_3 = \frac{18}{12} = 1,5 \text{ A}$ $i_1 = i_4 = i_2 + i_3 = 4,5 + 1,5 = 6,0 \text{ A}$ $\text{E} = (\text{R}_1 \times i_1) + \text{V} + (\text{R}_4 \times i_4) = (3 \times 6) + 18 + (4 \times 6) = 60 \text{ V}$
3	$a = \frac{F}{m} = \frac{12}{6} = 2 \text{ m/s}^2$ $v = v_o + a\Delta t$ $v = 0,4 + 2 \times 1 = 2,4 \text{ m/s}$
4	$s_3 = s_A + vt_3$ $s_8 = s_A + vt_8$ $s_8 - s_3 = v(t_8 - t_3) \rightarrow v = \frac{58 - 28}{8 - 3} = 6,0 \text{ m/s}$ $s_A = s_3 - vt_3 = 28 - 6 \times 3 = 10,0 \text{ m}$
5	$R = F_{at}$ $m = \frac{P}{g} = \frac{800}{10} = 80 \text{ kg}$ $R = ma \quad \rightarrow \quad a = \frac{40}{80} = 0,5 \text{ m/s}^2$
6	$\text{V} = \text{K}\frac{\text{q}}{\text{r}} = 600 \text{ V}$ $E = K\frac{q}{r^2} = 200 \text{ V/m}$ $\frac{V}{E} = r = 3 \text{ m}$ $q = \frac{rV}{K} = \frac{3 \times 600}{9 \times 10^9} = 2,0 \times 10^{-7} \text{ C}$

7	$Q_p = e = 2q_u + q_d = 2\times\frac{2}{3}e + q_d \quad \rightarrow \quad q_d = e - \frac{4}{3}e = -\frac{1}{3}e$ $Q_n = 0 = xq_u + yq_d \quad \rightarrow \quad \frac{y}{x} = -\frac{q_u}{q_d} = 2$ $x + y = 3$ $x = 1, \quad y = 2 \quad \rightarrow \quad n = udd$
8	$\begin{cases} \mathrm{n_o},\ \mathrm{P_o} = 2\ \mathrm{atm} \\ \mathrm{V_o},\ \mathrm{T_o} = 300\ \mathrm{K} \end{cases} \Rightarrow \quad \mathrm{P_o V_o} = n_o \mathrm{R T_o}$ $\begin{cases} n = \frac{n_o}{2},\ \mathrm{P} \\ \mathrm{V} = \mathrm{V_o},\ \mathrm{T} = 280\ \mathrm{K} \end{cases} \Rightarrow \quad \mathrm{PV} = n\mathrm{RT} \quad \Rightarrow \quad \mathrm{PV_o} = \frac{n_o}{2}\mathrm{RT}$ $2\frac{\mathrm{P}}{\mathrm{P_o}} = \frac{\mathrm{T}}{\mathrm{T_o}}$ $P = \frac{280}{300} = \frac{14}{15} = 0,93\ \mathrm{atm}$
9	$\left(\mathrm{W} + \mathrm{P_1}\right)\frac{\overline{\mathrm{AB}}}{2} = \mathrm{P_2}\ x$ $\left(\mathrm{W} + \mathrm{P_1}\right) = \left(10 + 50\right)\mathrm{g} \quad \mathrm{e} \quad \mathrm{P_2} = 50\ \mathrm{g}$ $60\ \mathrm{g}\,\frac{2}{2} = 50\ \mathrm{g}\ x \quad \Rightarrow \quad x = \frac{6}{5} = 1,2\ \mathrm{m}$ $d = \frac{\overline{\mathrm{AB}}}{2} + x = 2,2\ \mathrm{m}$
10	$\frac{\mathrm{sen}\, i}{\mathrm{sen\, r}} = n \quad \rightarrow \quad \mathrm{sen r} = \frac{0,12}{1,2} = 0,1$ $\tan \mathrm{r} \simeq 0,1$ $\tan \mathrm{r} = \frac{\mathrm{d}}{3} \quad \rightarrow \quad \mathrm{d} = 3\tan \mathrm{r} = 0,3\ \mathrm{m} = 30\ \mathrm{cm}$