

PADRÃO DE RESPOSTAS
(VALOR POR QUESTÃO: 2,00 PONTOS)

Questão	Resposta
1	$m = 2 \times 38000 + 6 \times 35000 = 76000 + 210000 = 286000 \text{ kg}$ $F_R = m \times a = 286000 \times 1,10 = 314600 \text{ N}$
2	$v^2 = v_0^2 + 2 \times a \times \Delta s \rightarrow \Delta s = \frac{22^2 - 0}{2 \times 1,10} = 220 \text{ m}$ $v^2 = v_0^2 + 2 \times a \times \Delta s \rightarrow \Delta s = \frac{22^2 - 0}{2 \times 1,25} = 193,6 \text{ m}$ $d = 1200 + 220 + 193,6 = 1613,6 \text{ m}$
3	$\text{sen } \theta = \frac{0,10}{1} = 0,10$ $T \text{ sen } \theta = m a$ $T \times 0,10 = 0,2 \times 1,10$ $T = 2,2 \text{ N}$
4	$p = \frac{F}{A} = \frac{n \times m \times g}{A}$ $p = \frac{8 \times 60 \times 10}{1} = 4800 \text{ N/m}^2$
5	$P = 4 \times 8 \times 140 = 4480 \text{ kW}$ $P = \frac{\tau}{\Delta t} \rightarrow \tau = P \times \Delta t = 4480 \times 100 = 448000 \text{ kJ}$
6	$E = P \times \Delta t \rightarrow E = 12 \times 25 \times 15 = 4,5 \text{ kWh}$ $E = 4,5 \times 30 \text{ kWh} = 135 \text{ kWh}$ $\text{Valor} = 135 \times \text{R\$ } 0,80 = \text{R\$ } 108,00$
7	$m = 2 \times 38000 + 6 \times 35000 + 8 \times 400 \times 60 = 76000 + 210000 + 192000 = 478000 \text{ kg}$ $v = 36 \text{ km/h} = 10 \text{ m/s}$ $E_c = \frac{m \times v^2}{2} = \frac{478000 \times 10^2}{2}$ $E_c = 23900000 \text{ J}$

8	$V = 3 \times 22 \times 3,6 = 237,6 \text{ m}^3$ $d = \frac{m}{V} \rightarrow m = d \times V = 1,2 \times 237,6 = 285,12 \text{ kg}$ $Q = m \times c \times \Delta\theta = 285,12 \times 240 \times 10$ $Q = 684288 \text{ cal}$
9	$i = 37^\circ$ $r = 60^\circ$ $\text{sen } i \times n_L = \text{sen } r \times n_{ar}$ $0,6 \times n_L = 0,87 \times 1 \Rightarrow n_L = \frac{0,87}{0,6} = 1,45$
10	$B = \frac{i\mu_0}{2\pi d} \rightarrow B = \frac{5000 \times (4\pi \times 10^{-7})}{2\pi \times 5}$ $B = 2,00 \times 10^{-4} \text{ T}$