Física

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Abstract

1 Questões Física Halliday - Cap.7

5)
$\sigma = A$
a) $A = \frac{b*h}{2} = \frac{2*F1*x1}{2} = F1 * x1$

b) $A = \frac{(b+B)*h}{2} = \frac{(0.5*x1+x1)*2*F1}{2} = 1.5 * x1 * F1$

d) $A = \frac{(b+B)*h}{2} = \frac{(0.5*x1+x1)*F1}{2} = \frac{3}{4} * x1 * F1$

7)
$\sigma = F * d * \cos\theta$
P/$\theta = 90$
$\sigma = 0$
P/$\theta = 60$
$\sigma = m * g * \frac{1}{2}$
P/$\theta = 30$
$\sigma = m * g * \frac{\sqrt{3}}{2}$
$\sigma -> c > b > a$

9)
a) $\sigma el = -\frac{1}{2} * K * d^2$

se $Ka > Kb$, então $\sigma a > \sigma b$
$-\frac{1}{2} * Ka * d^2$
$-\frac{1}{2} * Kb * d^2$

b) $\sigma = -\frac{1}{2} * K * d^2$ =-$\frac{1}{2} * K * d * d$
$F = -K * d$
$\sigma = -\frac{F*d}{2}$ Logo, $\sigma a = \sigma b$

Exercícios
1)
$\sigma = \Delta * Ec$
$F * d * \cos\theta = \frac{m}{2} * V * f^2 - \frac{m}{2} * Vi^2$
$Vi^2 + 2 * a * d * \cos\theta = Vf^2$
Vf^2=$(2,4 * 10^7)^2 + 2 * 3,6 * 10^5 * 3,5 * 10^-2$
$Vf = 2,8 * 10^7$m/s

3)
a) $Ec = Edis$
$Ec = m * V^2 * \frac{1}{2}$
$Ec = 4 * 10^6 * (1,5 * 10^3)^2 * \frac{1}{2}$
$Ec = 4,5 * 10^14J$

b) $Ec = Eex * n$ $n = \frac{4,5*10^14}{4,2*10^15}$
$n = 1,07 * 10^-1 = 0,1$ megaton

c) $Ebomba * n = Emeteorito$
$n = \frac{Emet}{Ebomb} = \frac{0,1*10^6}{13*10^3} = 8$ bombas

5)
$Ecpai = \frac{Ecfilho}{2}$
$\frac{mp*vp^2}{2} = \frac{1}{2} * \frac{mf*vf^2}{2}$
$mf = \frac{mp}{2}$
$Ecpai = Ecfilho$
$\frac{1}{2} * mp * (Vp + 1)^2 = \frac{1}{2} * mf * Vf^2$
Substituindo mp:
$\frac{1}{2} * 2 * mf * (Vp + 1)^2 = \frac{1}{2} * mf * Vf^2$

a) Vp =?
$(Vp + 1)^2 = \frac{1}{2} * Vf^2$
$Vp = Vf * \sqrt{\frac{1}{2}} - 1$

b) Vf =?
$(Vp + 1)^2 = \frac{1}{2} * Vf^2$
$Vf = \sqrt{2 * (Vp + 1)^2}$
$Vf = (Vp + 1) * \sqrt{2}$