NL – oblici energije (br. 2)

(7.) $m = 2\,kg$, $h = 1\,m$

$E_{gp} = ?$

$E_{gp} = m \cdot g \cdot h$

$E_{gp} = 2\,kg \cdot 10\frac{N}{kg} \cdot 1\,m$

$E_{gp} = 20\,J$

(8) $m = 1500\,g = 1{,}5\,kg$, $h_1 = 65\,dm = 6{,}5\,m$

a) $E_{gp_1} = ?$

$E_{gp_1} = m \cdot g \cdot h_1$

$E_{gp_1} = 1{,}5\,kg \cdot 10\frac{N}{kg} \cdot 6{,}5\,m$

$E_{gp_1} = 97{,}5\,J$

b) $E_{gp_2} = m \cdot g \cdot h_2$

$E_{gp_2} = 1{,}5\,kg \cdot 10\frac{N}{kg} \cdot 5\,m$

$E_{gp_2} = 75\,J$

c) Došlo je do smanjenja E_{gp} i to za: $(h_1 > h_2)$

$\Delta E_{gp} = E_{gp1} - E_{gp2}$

$= 97{,}5\,J - 75\,J$

$= 22{,}5\,J$

(9.) $m = 400\,g = 0{,}4\,kg$

$E_{gp} = 12\,J$

$h = ?$

$E_{gp} = m \cdot g \cdot h$

$h = \frac{E_{gp}}{m \cdot g}$

$h = \frac{12\,J}{0{,}4\,kg \cdot 10\frac{N}{kg}}$

$h = 3\,m$

(12) $m = 2\,g = 0{,}002\,kg$

$E_{gp} = 0{,}16\,J$

$h = ?$

$E_{gp} = m \cdot g \cdot h$

$h = \frac{E_{gp}}{m \cdot g}$

$h = \frac{0{,}16\,J}{0{,}002\,kg \cdot 10\frac{N}{kg}}$

$h = 8\,m$

(10.) $N = 3$

$h_1 = 3.5\,m$

$E_{gp} = 4{,}41\,kJ = 4410\,J$

a) $m = ?$

$h_{uk} = N \cdot h_1 = 3 \cdot 3{,}5\,m = 10{,}5\,m$

$E_{gp} = m \cdot g \cdot h$

$m = \frac{E_{gp}}{g \cdot h}$

$m = 42\,kg$

$m = \frac{4410\,J}{10\frac{N}{kg} \cdot 10{,}5\,m}$

b) $G = ?$

$G = m \cdot g$

$G = 42\,kg \cdot 10\frac{N}{kg}$

$G = 420\,N$

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(11.) $m_1 = 5000\,g = 5\,kg$

$h_1 = 6\,m$

$m_2 = 2\,kg$

$h_2 = ?$ uz uvjet $E_{gp_1} = E_{gp_2}$

$E_{gp_1} = E_{gp_2}$

$m_1 \cdot g \cdot h_1 = m_2 \cdot g \cdot h_2 \quad / : g$

$m_1 \cdot h_1 = m_2 \cdot h_2$

$5\,kg \cdot 6\,m = 2\,kg \cdot h_2$

$30\,kg \cdot m = 2\,kg \cdot h_2 \quad / : 2\,kg$

$15\,m = h_2$

(13) zadatak iz pripreme

(14.) zadatak iz pripreme

(15.) $h = 30\,m$

$V = 2\,m^3$

$\rho = 1000\,kg/m^3$

$E_k = ?$

Dolazi do pretvorbe energije: $E_{gp} \longrightarrow E_k$ pa je E_k u konačnom trenutku jednaka E_{gp} u početnom trenutku.

$\rho = \frac{m}{V}$

$m = \rho \cdot V$

$m = 1000\,kg/\cancel{m^3} \cdot 2\,\cancel{m^3}$

$m = 2000\,kg$

$G = m \cdot g$

$G = 20000\,N$

$E_{gp} = m \cdot g \cdot h$

$E_{gp} = 2000\,kg \cdot 10\,\frac{N}{kg} \cdot 30\,m$

$E_{gp} = 600\,000\,J$

$E_k = E_{gp} = 600\,000\,J$

(16.) $m = 20\,g = 0{,}02\,kg$

$h = 140\,cm = 1{,}4\,m$

$E_{gp} = ?$

Pretvorba energije:

$E_a \longrightarrow E_{gp}$

$E_{gp} = m \cdot g \cdot h$

$E_{gp} = 0{,}02\,kg \cdot 10\,\frac{N}{kg} \cdot 1{,}4\,m$

$E_{gp} = 0{,}28\,J$

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