

FIZIKA - VAJE

1) $F = m \cdot a$
 $F = \frac{m \cdot v}{t}$

$$a = \frac{v}{t}$$

$$v = \frac{s}{t}$$

$$F = \frac{m \cdot s}{t^2} = \left[\frac{\text{kg} \cdot \text{m}}{\text{s}^2} \right]$$

2.) Enota za moč je WATT

$$P = \frac{A}{t} = \left[\frac{\text{J}}{\text{s}} \right] = \left[\frac{\text{N} \cdot \text{m}}{\text{s}} \right] = \left[\frac{\text{kg} \cdot \text{m} \cdot \text{m}}{\text{s} \cdot \text{s}^2} \right]$$

2.) 1) $m = 0,4 \text{ kg}$

$\alpha = 60^\circ$

$F_1 = ?$

$F_2 = ?$



$$F_y = F_g = \boxed{4 \text{ N}}$$

$$\sin 60^\circ = \frac{F_y}{F_1}$$

$$F_1 = \frac{4 \text{ N}}{\sin 60^\circ} = \underline{\underline{4,6 \text{ N}}}$$

$$\cos 60^\circ = \frac{F_x}{F_1}$$

$$F_x = 4,6 \text{ N} \cdot \cos 60^\circ$$

$$F_x = \underline{\underline{2,3 \text{ N} = F_2}}$$

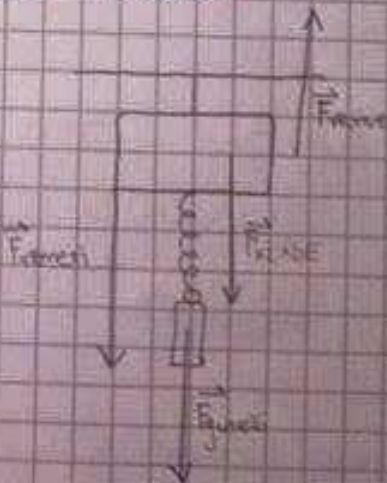
2.) $\vec{F}_L = -\vec{F}_D$ Predmeta se vedno privlačita/odbijata z (nasprotno) enako

3. NEWTONOV ZAKON

3.) 1) $m = 0,3 \text{ kg}$

$k = 100 \text{ N/m}$

$m_u = 100 \text{ g} = 0,1 \text{ kg}$



b) $F_{\text{vzmeti}} = F_g$

$F_v = 3 \text{ N} + 1 \text{ N} = \underline{\underline{4 \text{ N}}}$

c) $F_{\text{vzmeti}} = F_{\text{utezi}} = \underline{\underline{1 \text{ N}}}$

d) $F = k \cdot x$

$$x = \frac{F}{k} = \frac{1 \text{ N} \cdot \text{m}}{100 \text{ N}}$$

$$x = \underline{\underline{0,01 \text{ m}}}$$

2) Telo se privlači z (maspetno) enako silo.

1) $a = 0,3 \text{ m}$

$p = 0,2 \text{ bar} = 20000 \text{ Pa}$

$m = ?$

$p = ?$

$p = \frac{F}{S} = \frac{m \cdot a}{S}$

$m = \frac{p \cdot S}{a} = \frac{20000 \text{ Pa} \cdot 0,3^2 \text{ m}^2}{10}$

$m = 180 \text{ kg}$

bar \rightarrow Pascal
5 NIČEL!

$S = a^2$

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

$V = a^3$

$\rho = \frac{180 \text{ kg}}{0,027 \text{ m}^3} = 6667 \text{ kg/m}^3$

2) $p_2 = 3p_1$ Večja je površina, manjši je tlak!

5) 1) $h = 2500 \text{ m}$

a) $p_H = ?$

$p_H = \rho \cdot g \cdot h$

$p_H = 1000 \text{ kg/m}^3 \cdot 10 \text{ m/s}^2 \cdot 2500 \text{ m} =$
 $= 25000000 \text{ Pa} = 250 \text{ bar}$

b) $p = p_H + 1 = 251 \text{ bar}$

c) $a = 0,2 \text{ m}$

$p = \frac{F}{S}$

$F = p \cdot S$ $S = a^2 = 0,04 \text{ m}^2$

$F = 2500000 \text{ Pa} \cdot 0,04 \text{ m}^2$

$F = 100000 \text{ N}$

2) D Tlak z globino NARAŠČA!

① $V = 0,03 \text{ m}^3$
 $\rho_H = 0,16 \text{ kg/m}^3$
 $\rho_z = 1,2 \text{ kg/m}^3$
 $m_{\text{prazen}} = 0,02 \text{ kg}$

a) $m_{\text{pdn}} = ?$

$$m = m_{\text{prazen}} + m_{\text{mehj}}$$

$$= 0,02 \text{ kg} + 0,0048 \text{ kg}$$

$$= \underline{0,0248 \text{ kg}}$$

$$m_{\text{mehj}} = \rho \cdot V = 0,16 \text{ kg/m}^3 \cdot 0,03 \text{ m}^3$$

$$= 0,0048 \text{ kg}$$

b) $F_{\text{vzg}} = ?$

$F_{\text{vzg}} = \rho \cdot g \cdot V$

$$F_{\text{vzg}} = 1,2 \text{ kg/m}^3 \cdot 10 \text{ m/s}^2 \cdot 0,03 \text{ m}^3$$

$$= \underline{0,36 \text{ N}}$$

c) $F_{\text{rooke}} = ?$

$F_{\text{vzg}} = F_R + F_g$

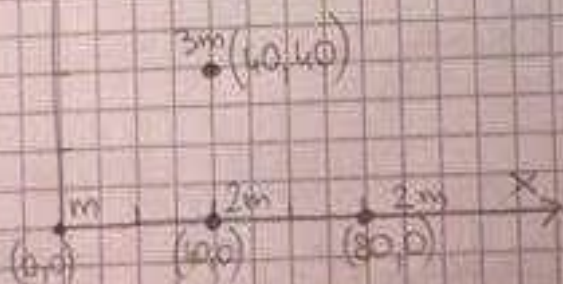
$$F_R = F_{\text{vzg}} - F_g$$

$$= 0,36 \text{ N} - 0,248 \text{ N}$$

$$= \underline{0,112 \text{ N}}$$

② A Tehtnica pri enakih količinah vedno kaže enako.

① $y \uparrow$



$$x = \frac{x_1 \cdot m_1 + x_2 \cdot m_2 + x_3 \cdot m_3 + x_4 \cdot m_4}{m_1 + m_2 + m_3 + m_4}$$

$$x = \frac{0 \cdot m + 40 \cdot 2m + 80 \cdot 2m + 40 \cdot 3m}{8m}$$

$$x = 45$$

$$y = \frac{y_1 \cdot m_1 + y_2 \cdot m_2 + y_3 \cdot m_3 + y_4 \cdot m_4}{m_1 + m_2 + m_3 + m_4}$$

$$y = \frac{0 \cdot m + 0 \cdot 2m + 0 \cdot 2m + 40 \cdot 3m}{8m}$$

$$y = 15$$

$$T(x, y) = T(45, 15)$$

② $M_1 = M_2 = M_3$

1)

VODNIK

$$l = 30 \text{ m}$$

$$S = 2,8 \text{ mm}^2$$

TUJJAVA

$$N = 100$$

$$m = 0,3 \text{ m}$$

$$U = 5 \text{ V}$$

$$I = 3 \text{ A}$$

a) $\rho = ?$ $R = \rho \cdot \frac{l}{S}$

$$\rho = \frac{R \cdot S}{l} = \frac{1,6 \cdot 2,8}{30}$$

$$= 0,16 \frac{\Omega \cdot \text{mm}^2}{\text{m}}$$

$$R = \frac{U}{I} = \frac{5}{3} = 1,6 \Omega$$

b) $B = ?$ gostota magn. polja

$$B = \frac{\mu_0 \cdot N \cdot I}{l}$$

μ_0 - konstanta

$$B = \frac{4\pi \cdot 10^{-7} \cdot 100 \cdot 3}{30}$$

$$B = 1,3 \cdot 10^{-5} \text{ T}$$

c) $\Phi = ?$ magnetni pretok

$$\Phi = N \cdot B \cdot S$$

$$\Phi = 100 \cdot 1,3 \cdot 10^{-5} \cdot 0,007$$

$$\Phi = 8,8 \cdot 10^{-4} \text{ Vs}$$

$$2\pi r = l$$

$$N \cdot 2\pi r = 30 \text{ m}$$

$$r = \frac{30}{200\pi} = 0,05 \text{ m}$$

$$S = \pi r^2 \rightarrow 0,007 \text{ m}^2$$

d) $U = ?$

$$U = \frac{\Delta \Phi}{\Delta t}$$

$$U = \frac{8,8 \cdot 10^{-4}}{0,01} = 8,8 \cdot 10^{-2} \text{ V}$$

10) $a = 0,2 \text{ m}$
 $M = 1,33 \left(\frac{b}{a}\right)$

← KONKAVNO ZRCALO!

1) $R = ?$

$$\frac{1}{f} = \frac{1}{a} + \frac{1}{b}$$

~~$F = \frac{ab}{a+b}$~~
 ~~$F = \frac{0,2 \cdot 0,27}{0,2 + 0,27} =$~~

$$M = \frac{b}{a}$$

$$b = M \cdot a = 0,27 \text{ m}$$

$$= -0,27 \text{ m}$$

NEGATIVEN, ker je objekt bližje zrcalu kot gorišče

$$\frac{1}{f} = \frac{1}{0,2} - \frac{1}{0,27}$$

$$\frac{1}{f} = 1,4$$

$$f = 0,77$$

$$R = 2f = \underline{\underline{1,5 \text{ m}}}$$

11) 1) $t = 28800 \text{ s}$

$$I = 100 \text{ mA} = 0,1 \text{ A}$$

$$e = ?$$

$$I = \frac{e}{t}$$

$$e = I \cdot t = \underline{\underline{2880 \text{ A}}}$$

2) Telo postane pozitivno nabiteno, ko iz nevtralnega telesa ODSTRANIMO nekaj elektronov.

12) $S = 10 \text{ dm}^2 = 0,1 \text{ m}^2$

1) $d = 0,05 \text{ m}$

$$U = 5000 \text{ V}$$



a) $E = ?$ el. poljska jakost

$$U = E \cdot d$$

$$E = \frac{U}{d} = 100000 \text{ V/m}$$

b) $\epsilon = ?$ plaskarna gostota naboja
 $\epsilon = E \cdot \epsilon_0$ konst.

$$\epsilon = 100000 \cdot 8,85 \cdot 10^{-12}$$

$$\epsilon = 8,85 \cdot 10^{-7} \text{ As/m}^2$$

1) $R_1 = 1 \Omega$
 $R_2 = 2 \Omega$
 $R_3 = 2 \Omega$
 $U = 4V$
 $P = ?$

$$P = \frac{U^2}{R}$$

$$\frac{1}{R_{23}} = \frac{1}{R_2} + \frac{1}{R_3}$$

$$= \frac{1}{2} + \frac{1}{2}$$

$$= 1 \Omega$$

$$R = R_{23} + R_1 = 2 \Omega$$

$$P = \frac{4^2}{1} = \underline{\underline{8W}}$$

1) $2r = 0,60 \text{ mm}$
 $d = 12 \text{ mm}$
 $I = 1,6A$
 $U = 0,6V$
 $\rho = ?$ spec. uprot

$$\rho = \frac{R \cdot S}{l}$$

PRESEK!
 $S = \pi r^2$ → polmer!

$$S = \pi \cdot (0,30)^2$$

$$S = 0,28 \text{ mm}^2$$

$$\rho = \frac{0,375 \cdot 0,28}{12}$$

$$\rho = 8,8 \cdot 10^{-10} \frac{\text{Ohm} \cdot \text{mm}^2}{\text{m}}$$

$$R = \frac{U}{I} = \frac{0,6V}{1,6A} = 0,375 \Omega$$

2) 4R

1) $U = 9V$
 $R = 20 \Omega$
 $R_x = ?$
 $I = 0,2A$



$$R_x = R_{\text{skupni}} - R_1 (20 \Omega)$$

$$R_s = \frac{U}{I} = \frac{9V}{0,2A} = 45 \Omega$$

$$R_x = 45 \Omega - 20 \Omega$$

$$= \underline{\underline{25 \Omega}}$$

$$I = \frac{U}{R} = \frac{0,2A \cdot 10}{10} = 0,2A$$

2.) Emda za el. polje je As
 Emda za gostoto magn. polja je Vs/m² (tesla)
 levor magn. polja je lahko el. tok
 Ohmov zakon → $U = R \cdot I$

$$\alpha = 45^\circ$$

$$n_v = 1,33 \quad n_2 = 1$$

a)

iz zraka v olje

$$n_1 \cdot \sin \alpha = n_2 \cdot \sin \beta \quad \rightarrow \quad \sin \beta = \frac{n_1 \cdot \sin \alpha}{n_2}$$

$$\sin \beta = \frac{\sin 45^\circ \cdot 1}{1,33}$$

$$\beta = 29^\circ$$

iz olja v vodo

$$n_1 \cdot \sin \beta = n_2 \cdot \sin \gamma$$

$$\sin \gamma = \frac{n_1 \cdot \sin \beta}{n_2}$$

$$\gamma = 32,1^\circ$$

2) O UKLONU svetlobe govorimo, ko se svetloba pri prehodu skozi optični medij tudi na geometrijske sence za optiko.

8) 1) $a = 0,5 \text{ m}$
 $f = 0,2 \text{ m}$
 $b = ?$

$$\frac{1}{a} + \frac{1}{b} = -\frac{1}{f}$$

$$\frac{1}{b} = -\frac{1}{f} - \frac{1}{a}$$

2) Če svečo približujemo zbiralnemu zrcalu, je slika čedalje večja

in manjšaj vse dlje od g. r.

$$\frac{1}{b} = -7$$

$$\underline{\underline{b = 0,14 \text{ m}}}$$

9) $a = 0,3 \text{ m}$

$$M = 2,5 \text{ (povečana)}$$

$$\frac{b}{a} = M$$

$$b = 2,5 \cdot 0,3$$

$$b = 0,75 \text{ m}$$

KONKAVNO ZRCALO - ZBIRALNO
KONKAVNA LEČA - RAZPRŠILNA

1) $R = ?$

$$\underline{\underline{R = 2 \cdot f}}$$

$$\frac{1}{f} = \frac{1}{a} + \frac{1}{b}$$

$$\underline{\underline{R = 0,42 \text{ m}}}$$

$$f = \frac{ab}{a+b} = \frac{0,225}{1,05} = 0,21 \text{ m}$$

2) Govorčica razdalja je odvisna od ukrivljenosti zrcala

2) IZOTERMNA SPREMEMBA \rightarrow tlak plina je obratno sorazmeren s prostornino plina

1)

a) s_0 (ve slike) = 1,5 cm

b) $\nu = \frac{1}{t_0}$ (ve slike) = $\frac{1}{12} = 0,08/s = 0,08 \text{ Hz}$

c) $v_0 = s_0 \cdot \omega$ $\omega = 2\pi \cdot \nu$

$$= 0,015 \cdot 2\pi \cdot 0,08$$

$$= \underline{0,008 \text{ m/s}}$$

$$\nu = \frac{1}{t_0} \text{ [Hz]}$$

$$v_0 = s_0 \cdot \omega$$

$$\omega = 2\pi \cdot \nu$$

2) B

15) $m = 0,26 \text{ kg}$

1) $\nu = 2 \text{ Hz}$

$$s_0 = 0,15 \text{ m}$$

a) $v_0 = ?$

$$v_0 = s_0 \cdot \omega$$

$$= s_0 \cdot 2\pi \cdot \nu$$

$$= 0,15 \cdot 2\pi \cdot 2 = \underline{1,8 \text{ m/s}}$$

b) $k = ?$

$$t_0 = 2\pi \sqrt{\frac{m}{k}}$$

$$\sqrt{\frac{m}{k}} = \frac{t_0}{2\pi} \quad ||^2$$

$$\frac{m}{k} = \frac{t_0^2}{4\pi^2}$$

$$t_0 = \frac{1}{\nu}$$

$$\text{Et } k = \frac{m}{\left(\frac{t_0}{2\pi}\right)^2} = \frac{0,26}{\frac{0,25}{4\pi^2}} = \underline{41,06 \text{ N/m}}$$

2) $t_0 = 2\pi \sqrt{\frac{2m}{k}}$

6) $\lambda = 0,12 \text{ m}$

1) $x_1 = \frac{\lambda}{4} = 0,03 \text{ m} = 3 \text{ cm}$

$$x_2 = 3 \cdot \frac{\lambda}{4} = 0,09 \text{ m} = 9 \text{ cm}$$

b) propulzivno, $a = 2 \text{ m/s}^2$

$$\sum \vec{F} = m \cdot a$$

$$F_R - F_{tr} = m \cdot a$$

$$F_R = m \cdot a + F_{tr}$$

$$= 0,6 \text{ kg} \cdot 2 \text{ m/s}^2 + 3,36 \text{ N}$$

$$\underline{F = 4,56 \text{ N}}$$

2.) Težava povečuje hitrost pri dvigavanju po klancu navzdol

1.) $l = 0,2 \text{ m}$

$$N = 90$$

$$t = 60 \text{ s}$$

$$\nu = 90 / \text{min} = 1,5 / \text{s}$$

$$t_0 = ?$$

$$\omega = ?$$

$$v = ?$$

obhodni čas

$$t_0 = \frac{1}{\nu} = \frac{1}{1,5 \text{ s}} = 0,667 \text{ s}$$

kotna hitrost

$$\omega = 2\pi \nu = 9,4 / \text{s}$$

obodna hitrost

$$v = r \cdot \omega = 0,2 \cdot 9,4 = 1,9 \text{ m/s}$$

2) Če telo kroži ENAKOMERNO, se velikost obodne hitrosti NE SPREMINJA, smer hitrosti pa se SPREMINJA

1.) $m = 10 \text{ kg}$

$$v_0 = 54 \text{ km/h} = 15 \text{ m/s} \rightarrow t = 30 \text{ s}$$

$$v_1 = 162 \text{ km/h} = 45 \text{ m/s}$$

a) $G_1, G_2 = ?$

$$G_1 = m \cdot v_0 = 10 \cdot 15 = 150 \frac{\text{kg} \cdot \text{m}}{\text{s}}$$

$$G_2 = m \cdot v_1 = 10 \cdot 45 = 450 \frac{\text{kg} \cdot \text{m}}{\text{s}}$$

SUNEK SILE

$$b) \boxed{F_{\Delta t} = \Delta G}$$

$$\Delta G = G_2 - G_1 = 300 \frac{\text{kg} \cdot \text{m}}{\text{s}}$$

$$\underline{F_{\Delta t} = 300 \frac{\text{kg} \cdot \text{m}}{\text{s}}}$$

$$\textcircled{1} t = 1 \text{ s}$$

$$s = 1 \text{ m}$$

$$s = \frac{a t^2}{2}$$

← enakomerno pospešeno iz mirovanja

$$1 = \frac{a \cdot 1^2}{2}$$

$$a = 2 \text{ m/s}^2$$

$$s = v \cdot t$$

$$s_2 = \frac{a t^2}{2}$$

$$s_2 = \frac{2 \cdot 2^2}{2} = 4$$

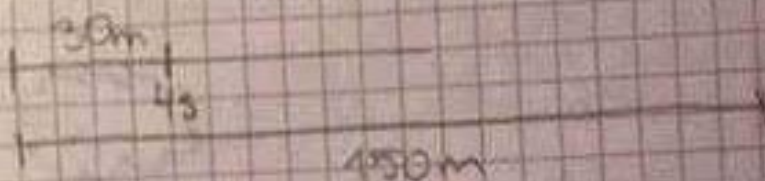
$$! \text{ } \Delta s = s_2 - s_1 = 4 - 1 = \underline{\underline{3 \text{ m}}}$$

$$\textcircled{2} b, d, e, g$$

$$\textcircled{1} t = 4 \text{ s}$$

$$v = 15 \text{ m/s}$$

$$s = 150 \text{ m} \rightarrow ?$$



$$s = v \cdot t$$

$$a = \frac{v}{t}$$

$$a = \frac{15 \text{ m}}{4 \text{ s}} = 3,75 \text{ m/s}^2$$

$$s = \frac{a t^2}{2}$$

$$s = \frac{3,75 \cdot 4^2}{2} = \underline{\underline{30 \text{ m}}}$$

$$s_2 = 150 - 30 = 120 \text{ m}$$

$$t = \frac{s}{v} = \frac{120}{15} = \underline{\underline{8 \text{ s}}}$$

$$t = 8 + 4 = 12 \text{ s}$$

$\textcircled{2}$ Tospesice \rightarrow hitrost v odvisnosti od časa

$$\textcircled{2} m = 0,6 \text{ kg}, k_r = 0,56$$

$$\textcircled{1} a) \text{ pramo enakomerno, } v = 6 \text{ m/s}$$

$$F_{tr} = F_{ave}$$

$$F_{tr} = k \cdot F_{N}$$

$$= 0,56 \cdot 6 \text{ N}$$

$$F_{tr} = \underline{\underline{3,36 \text{ N}}} = F_r$$



$$c) F = \frac{\Delta G}{\Delta t} = \frac{300 \text{ kg} \cdot \text{m}}{\Delta 30 \text{ s}} = \underline{10 \text{ N}}$$

$$d) t = 60 \text{ s}$$

$$v_0 = 45 \text{ m/s}$$

$$v_k = 0 \text{ m/s}$$

$$F \Delta t = \Delta G$$

$$\Delta G = G_2 - G_1 =$$

$$= m \cdot v_2 - m \cdot v_1$$

$$= -m \cdot v_1 = -450 \frac{\text{kg} \cdot \text{m}}{\text{s}} = -450 \text{ N}$$

$$F = \frac{\Delta G}{\Delta t} = \frac{-450 \text{ kg} \cdot \text{m}}{\Delta 60 \text{ s}}$$

$$= \underline{-7,5 \text{ N}}$$

$$e) m = 0,1 \text{ kg}$$

$$v_2 = 216 \text{ km/h} \rightarrow 60 \text{ m/s}$$

$$G_{\text{pred}} = G_{\text{po}}$$

Ker se metla razine v blado, upostevamo skupno maso

$$m_1 \cdot v_1 = (m_1 + m_2) \cdot v_2$$

$$0,1 \cdot 60 = (0,1 + 10) \cdot v_2$$

$$\underline{v_2 = 0,59 \frac{\text{m}}{\text{s}}}$$

$$1) m = 6 \text{ kg}$$

$$v_2 = 3 \text{ m/s}$$

$$r = 10 \text{ m}$$

$$k_T = ?$$

$$A = W_k = \frac{m \cdot v^2}{2} = \frac{6 \cdot 3^2}{2} = \underline{27 \text{ J}}$$

$$A = F \cdot s$$

$$27 \text{ J} = F_{\text{tr}} \cdot 10$$

$$F_{\text{tr}} = \frac{27 \text{ J}}{10 \text{ m}} = \underline{2,7 \text{ N}}$$

$$F_{\text{tr}} = k \cdot F_N$$

$$k = \frac{F_{\text{tr}}}{F_N} = \frac{2,7 \text{ N}}{60 \text{ N}}$$

$$\underline{k = 0,045}$$

$$2) B$$

$$W_k = \frac{m \cdot v^2}{2} \rightarrow \left(v = \frac{\Delta}{t} \right) \quad (a \cdot t = v)$$

$$v^2 = \frac{\Delta^2}{t^2}$$

1) $m = 0,01 \text{ kg}$
 $v = 700 \text{ m/s}$

a) $\Delta W_k = \Delta W_p$
 $\frac{m \cdot v^2}{2} = m \cdot g \cdot h$

or $v^2 = 2 \cdot g \cdot h$

$h = \frac{v^2}{2 \cdot g} = \frac{700^2 \text{ m}^2 \text{ s}^{-2}}{2 \cdot 10 \text{ m/s}^2} = \underline{24500 \text{ m}}$

b) $\Delta W_p = \Delta W_k - A_u$

$m \cdot g \cdot h = \frac{m \cdot v^2}{2} - \frac{F_g}{10} \cdot h$

$m \cdot g \cdot h + \frac{F_g}{10} \cdot h = \frac{m \cdot v^2}{2}$

$h \left(m \cdot g + \frac{F_g}{10} \right) = \frac{m \cdot v^2}{2}$

$h \left(m \cdot g + \frac{m \cdot g}{10} \right) = \frac{m \cdot v^2}{2}$

$h \cdot m \cdot g \left(1 + \frac{1}{10} \right) = \frac{m \cdot v^2}{2}$

$h \cdot m \cdot g \cdot \frac{11}{10} = \frac{m \cdot v^2}{2}$

$A_u = F_u \cdot s$

$A_u = \frac{F_g}{10} \cdot h$

$h = \frac{10}{11} \cdot \frac{m \cdot v^2}{2} \cdot \frac{1}{m \cdot g}$

$h = \frac{10 \cdot 2^2}{22 \cdot g}$

$h = \frac{10 \cdot 700^2}{22 \cdot 10}$

$h = \underline{22272,7 \text{ m}}$

2) $A = P \cdot t \rightarrow t = \frac{A}{P}$

8) 1) $m = 32 \text{ kg} \rightarrow F_g = 320 \text{ N}$
 $l = 3,6 \text{ m}$
 $F = 200 \text{ N}$

$m_{\text{breme}} = 7,5 \text{ kg} \rightarrow 75 \text{ N}$

$M_1 = M_2 + M_3$

$M = F \cdot r$

$\rightarrow M_1 = F_1 \cdot 3,6 \text{ m}$

$= 200 \text{ N} \cdot 3,6 \text{ m} = 720 \text{ N}$

$720 \text{ N} = 576x + 576$

$576x = 144$

$x = 0,25 \text{ m}$

$M_2 = F_2 \cdot r_2$

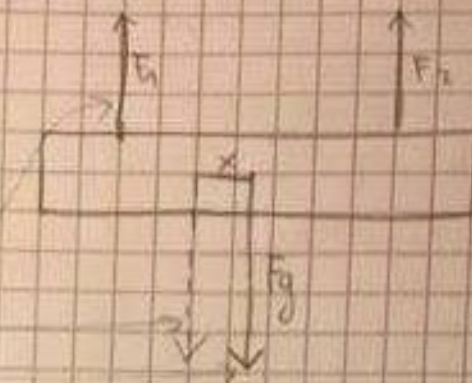
$= 320 \text{ N} \cdot (1,8 + x)$

! Polovica tovora + razlika

$M_3 = F_3 \cdot r_3$

$= 320 \text{ N} \cdot 1,8$

$= 576 \text{ N}$



2) D Z najdaljšo ročico je najlažje odvrniti vijak.

9) 1) $l = 1 \text{ m}$

leez rob = $0,2 \text{ m}$

$m_u = 0,3 \text{ kg}$

$m_x = ?$

$M_1 = M_2$

$M_1 = F_{g1} \cdot r_1$

$M_2 = F_{g2} \cdot r_2$

$F_{g1} \cdot r_1 = F_{g2} \cdot r_2$

$F_{g1} \cdot 1 \text{ m} = 3 \text{ N} \cdot 0,2 \text{ m}$

$F_{g1} = \frac{3 \cdot 0,2}{1} = 0,6 \text{ kg} = \underline{6 \text{ N}}$



2) Vektor: SILA, NAVOR, VZGON

1) $m = 0,01 \text{ kg}$
 $k_c = 2 \text{ N/cm} = 200 \text{ N/m}$
 $x = 0,01 \text{ m}$
 $h = ?$

$1 \text{ N/cm} = 100 \text{ N/m}$

$W_{pr} = W_p$

$\frac{k \cdot x^2}{2} = m \cdot g \cdot h$

$h = \frac{k \cdot x^2}{2 \cdot m \cdot g} = \frac{200 \cdot 0,01^2}{2 \cdot 0,01 \cdot 10} = \underline{0,1 \text{ m}}$

2.) Varnet stisnemo in raztegemo \rightarrow W_{pr} je v obeh primerih ENAKA!

1) $m = 1 \text{ m}$
 $T_0 = -20^\circ\text{C}$
 $T_1 = 60^\circ\text{C}$
 $\alpha = 1,2 \cdot 10^{-5} / \text{K}$
 $\Delta l = ?$

$\Delta l = \alpha \cdot l \cdot \Delta T$
 $\Delta l = 1,2 \cdot 10^{-5} \cdot 1 \cdot 80$
 $\Delta l = 0,00096 \text{ m}$

$1 \text{ m} \quad 100\%$
 $0,00096 \text{ m} \quad \dots \times$
 $x = \underline{0,096\%}$

2.) $\left. \begin{array}{l} \text{Voda + led} = 0^\circ\text{C} \\ \text{Vodna para + voda} = 100^\circ\text{C} \end{array} \right\}$ Razlika med temp. v posadah je 100 K

1) $V_1 = 5 \text{ l} \rightarrow 5 \text{ dm}^3 = 0,005 \text{ m}^3$ a) $p = ?$
 $m_2 = 0,2 \text{ kg}$
 $T = 23^\circ\text{C} = 296 \text{ K}$
 $V_2 = 8 \text{ l}$
 $M = 29 \text{ kg/kmol}$
 $R = 8310 \text{ J/K}$

$pV = nRT$

$p = \frac{m \cdot R \cdot T}{M \cdot V} = \frac{0,2 \cdot 8310 \cdot 296}{29 \cdot 0,005}$
 $p = 3392772 \text{ Pa}$

b) $T_2 = ?$

$\frac{pV}{T_2} = \frac{p_0 V_0}{T_0}$

$T = \frac{V \cdot T_0}{V_0} = \frac{0,008 \cdot 296}{0,005} = \underline{473,6 \text{ K}}$