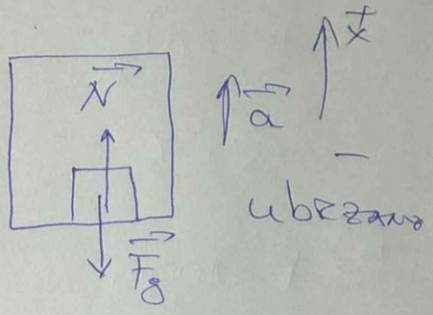
2.34.

a) $m = 60\,kg$

$a = 2\,\frac{m}{s^2}$

$Q = ?$



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

$\vec{F_g} + \vec{N} = m\vec{a}$

$N - F_g = ma$

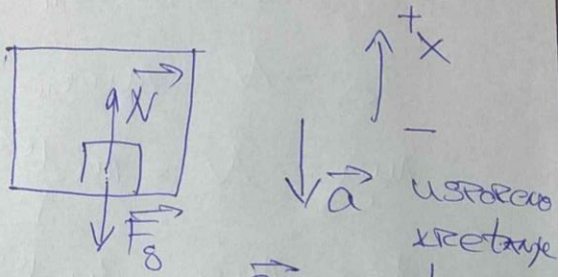
$N = ma + F_g$

$F_g = mg \; ; \; N = Q$

$$\boxed{Q = N = m(a+g)}$$

b) $m = 60\,kg$

$a = 2\,\frac{m}{s^2}$



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

$\vec{N} + \vec{F_g} = m\vec{a}$

$N - F_g = -ma$

$N = F_g - ma$

$F_g = mg \; ; \; N = Q$

$$\boxed{Q = N = m(g-a)}$$

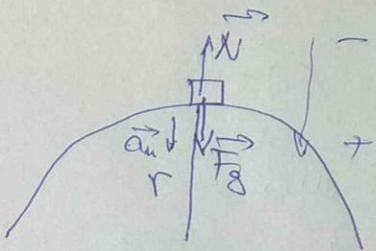
236.

$m = 5t$

$v = 60 \frac{km}{h}$

$Q = ?$

b) $r = 100m$



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

$v = const \Rightarrow a_t = 0 \Rightarrow \vec{a} = \vec{a_n} + \vec{a_t} = \vec{a_n}$

$\vec{F_g} + \vec{N} = m\vec{a_n}$

$a_n = \frac{v^2}{r}$

$F_g - N = ma_n$

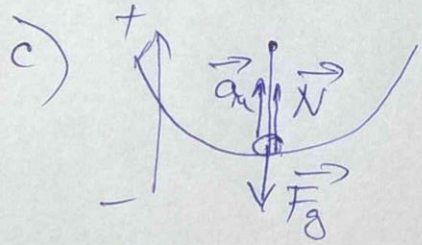
$F_g = mg$

$N = Q$

$mg - N = m\frac{v^2}{r}$

$N = mg - m\frac{v^2}{r} \Rightarrow$ $\boxed{Q = N = m\left(g - \frac{v^2}{r}\right)}$

c)



$N = mg + m\frac{v^2}{r}$

$\boxed{Q = N = m\left(g + \frac{v^2}{r}\right)}$

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

$a_t = 0 \Rightarrow \vec{a} = \vec{a_t}^{\,0} + \vec{a_n} = \vec{a_n}$

$a_n = \frac{v^2}{r}$; $F_g = mg$; $N = Q$

$\vec{N} + \vec{F_g} = m\vec{a_n}$

$N - F_g = m a_n$

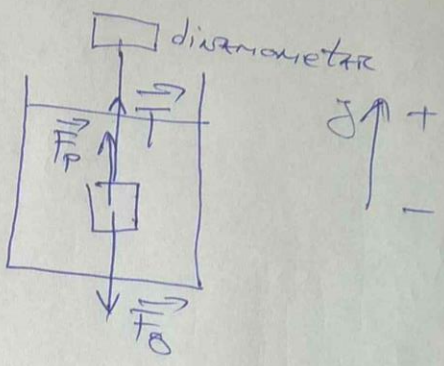
237. $\rho_v = 1000 \frac{kg}{m^3}$

$m = 5kg$

$V = 1dm^3 = 10^{-3}m^3$

$Q = ?$

$\boxed{Q = T}$



$\vec{F} = m\vec{a}$; $\vec{a} = \vec{0}$ tijelo miruje

$\vec{F_p} + \vec{T} + \vec{F_g} = m\vec{a} = \vec{0}$

$T + F_p - F_g = 0$

$T = F_g - F_p$

$F_g = mg$; $F_p = \rho_v V g$

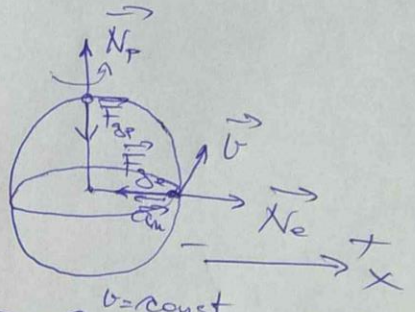
$\boxed{Q = T = mg - \rho_v V g}$

238.

$m = 50kg$

$R_z = 6400km = 6{,}4 \cdot 10^6 m$

$Q_p - Q_e = ?$ $\boxed{Q = N}$



$\vec{F_e} = m\vec{a_e}$

$\vec{a_e} = \vec{a_{te}} + \vec{a_{ne}} = \vec{a_{ne}}$

$\vec{N_e} + \vec{F_g} = m\vec{a_{ne}}$

$a_{ne} = \frac{v^2}{R_z}$; $F_g = mg$

$N_e - F_g = -ma_{ne}$

$N_e = mg - m\frac{v^2}{R_z}$ $\Rightarrow$ $\boxed{Q_e = N_e = m\left(g - \frac{v^2}{R_z}\right)}$

$$\vec{F}_p = m\vec{a}_p$$

$$\vec{F}_p = \vec{0}$$

$$\vec{F}_g + \vec{N}_p = \vec{0}$$

$$N_p = F_g$$

$$Q_p = N_p = mg$$

$$\vec{a}_p = \vec{a}_{tp} + \vec{a}_{np}$$

$$v_p = 0 \Rightarrow a_t = 0$$

$$a_n = \frac{v^2}{R} = 0$$

$$\Rightarrow \vec{a}_p = \vec{0}$$

$$Q_p - Q_e = mg - m\left(g - \frac{v^2}{R_z}\right)$$

$$\boxed{Q_p - Q_e = m\frac{v^2}{R_z}}$$