

16.04.2002 ~ 12PIT

②  $R = 100 \text{ m}$   
 $\alpha = 5^\circ \Rightarrow \text{tg } \alpha = \text{tg } 5^\circ = 0,09$   
 $\mu_b = 0,45$

$\tilde{\rho} = 0,09$   
 $\rho = 0,0875$   
 $\epsilon_r = \frac{\tilde{\rho} - \rho}{\rho} = 0,03 = 3\%$

$v_{\text{max}} \Rightarrow$   
 $v_{\text{max}} = \sqrt{Rg \frac{\text{tg } \alpha + \mu_b}{1 - \mu_b \text{tg } \alpha}} = \sqrt{100 \times 9,8 \times \frac{0,09 + 0,45}{1 - 0,45 \times 0,09}} = \underline{\underline{23,5 \text{ m/s}}}$   
 $= \underline{\underline{85 \text{ km/h}}}$

05.03.2003 - 12PIT

①  
 $h_1 = 40 \text{ m}$   
 $h_2 = 4 \text{ m}$   
 $v_1 = 54 \text{ km/h} = 15 \text{ m/s}$   
 $v_2 = 144 \text{ km/h} = 40 \text{ m/s}$   
 $v_3 = 180 \text{ km/h} = 50 \text{ m/s}$

POT ODHODA:  
 $S_0 = d_1 + h_2 + h_1 + h_2 = 40 + 4 + 144 = 188 \text{ m}$   
 $S_p = \frac{S_0}{1 - v_1/v_2} = \frac{188}{1 - 15/40} = \underline{\underline{301 \text{ m}}}$  trajaj preliteva.

$t_p = \frac{S_0}{v_2 - v_1} = \frac{188}{40 - 15} = \frac{188}{25} = \underline{\underline{7,52 \text{ sec}}}$

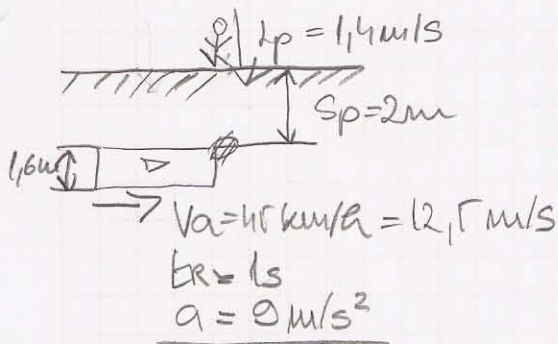
$S_p, t_p, h_3 = ?$

$h_1 = h_2 = \frac{v_2}{2} = \frac{40}{2} = 20 \text{ m}$   
 pred začetno prelitevat

POT:  
 $h_3 = S_p + v_3 \cdot t_p$   
 $= 301 + 50 \cdot 7,52$   
 $= 301 + 376$   
 $= \underline{\underline{677 \text{ m}}}$

nej bi se preliteva, koacalo

② Pešec . . . .



car .. POT PEŠCA

$t_p = \frac{S_p}{v_p} = \frac{2}{1,4} = \underline{\underline{1,43 \text{ s}}}$

Pot avtomobi.

$S_a = v_a \cdot t_p = 12,5 \times 1,4 = \underline{\underline{17,5 \text{ m}}}$   
 $S_u = v_a \cdot t_r + \frac{v_a^2}{2a} = 12,5 \times 1 + \frac{12,5^2}{2 \times 9}$

$= \underline{\underline{21,2 \text{ m}}} > \underline{\underline{17,5 \text{ m}}}$

pešec udeleži pešca u glede ča zavira

$t_p = \frac{S_p + W}{v_p} = \frac{3,6}{1,4} = 2,6 \text{ s}$

$S_a = v_a \cdot t_p - \frac{a(t_p - t_r)^2}{2} = 12,5 \times 2,6 - \frac{9 \times 1,6^2}{2} = \underline{\underline{21 \text{ m}}} > \underline{\underline{17,5 \text{ m}}}$

$\tilde{v}_a = v_a - a \cdot (t_p - t_r) =$   
 $= 12,5 - 9 \times 1,6 = -1,9 \Rightarrow$  he biga, tko postodoval

③ Oseba z radijem 120 m s 7% nagibom....

$$R = 120 \text{ m}$$

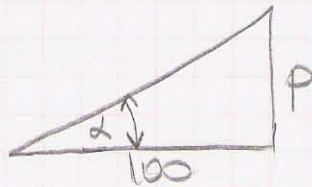
$$p = 7\% \text{ NAGIB}$$

$$\mu_b = 0,4$$

$$L = 1,6 \text{ m}$$

$$l = 0,5$$

$$v_{\max} = ?$$



$$\tan \alpha = \frac{p}{100} = \frac{7}{100} = 0,07$$

$$\mu_z = \frac{L}{2l} = \frac{1,6}{2 \times 0,5} = 1,6$$

$$\mu = \min(\mu_b, \mu_z) = \min(0,4; 1,6) = 0,4 \text{ (zores)}$$

$$v_{\max} = \sqrt{Rg \frac{\tan \alpha + \mu}{1 - \mu \tan \alpha}} = \sqrt{120 \times 9,8 \times \frac{0,07 + 0,4}{1 - 0,4 \times 0,07}} =$$

$$= 25,8 \text{ m/s} = \underline{\underline{86 \text{ km/h}}}$$

④

$$m_1 = 1500 \text{ kg}$$

$$m_2 = 2500 \text{ kg}$$

$$v_2 = 54 \text{ km/h}$$

$$s = 10 \text{ m (smer 2)}$$

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

$$v_1 = ?$$

$$v_{10} = ?$$

$$s_1 = 7 \text{ m}$$

$$a_1 = 7 \text{ m/s}^2$$

$$u = \sqrt{2as} = \sqrt{2 \times 2 \times 10} = 6,3 \text{ m/s} = \underline{\underline{23 \text{ km/h}}}$$

Po TRKU

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

ker se gibeta v smeri 2

$$1,5 \times v_1 - 2,5 \times 54 = -4 \times 23$$

$$v_1 = \frac{-4 \times 23 + 2,5 \times 54}{1,5} = \underline{\underline{29 \text{ km/h} = 8,1 \text{ m/s}}}$$

ko se je zabil

$$v_1 = \sqrt{v_1^2 + 2a_1 s_1} = \sqrt{8^2 + 2 \times 7 \times 7} =$$

$$= \underline{\underline{12,7 \text{ m/s} \times 3,6 = 46 \text{ km/h}}}$$

PREDTRKOM

⑤ Osebnu vozilo z maso 1600 kg....

$$m = 1600 \text{ kg}$$

$$f = 0,35 \text{ m}$$

$$k = 1600 \text{ kN/m}$$

$$\omega = \sqrt{\frac{k}{m}} = \sqrt{\frac{1600 \times 1000}{1600}} = 31,6 \text{ s}^{-1}$$

$$v = f \cdot \omega = 0,35 \text{ m} \times 31,6 \text{ s}^{-1} = 11,1 \text{ m/s} \times 3,6 = \underline{\underline{40 \text{ km/h}}}$$

ZALETEL

$$T_e = \frac{\pi}{2\omega} = \frac{\pi}{2 \times 31,6} = \underline{\underline{0,05 \text{ s}}}$$

$$a_m = v \cdot \omega = 11,1 \times 31,6 = 351 \text{ m/s}^2 = \underline{\underline{35,8 g}}$$

$$\frac{351}{9,8} \uparrow$$

$v = ?$   $a_m = ?$   $T_e = ?$   
max pojemaz  
 cas  
 kompozicije  
 trka

$$\pi = 3,14$$

25.1.2008 - petek 16.05h

Vaje: 15.5.2007 - IZPIT

Zračunaj pot...

$L_1 = 35 \text{ m}$

$L_2 = 4 \text{ m}$

$V_1 = 54 \text{ km/h} = 15 \text{ m/s}$

$a_2 = 1,5 \text{ m/s}^2$

③  $t_p = \sqrt{\frac{2s}{a}} = \sqrt{\frac{2 \cdot 93}{1,5 \text{ m/s}^2}} = \underline{\underline{11,1 \text{ s}}}$

④  $S_p = S_0 + V_1 \cdot t_p =$   
 $= 93 + 15 \text{ m/s} \cdot 11,1 \text{ s} =$   
 $= \underline{\underline{260 \text{ m}}}$  do prečiti

trajanje preletavanja =  $t_p = ?$

$S_p = ?$

$V_2 = ?$

$h \Rightarrow$  vsakostri razmak

①  $\left(\frac{V_1}{2}\right) = \frac{54 \text{ km}}{2} = 27 \text{ m}$

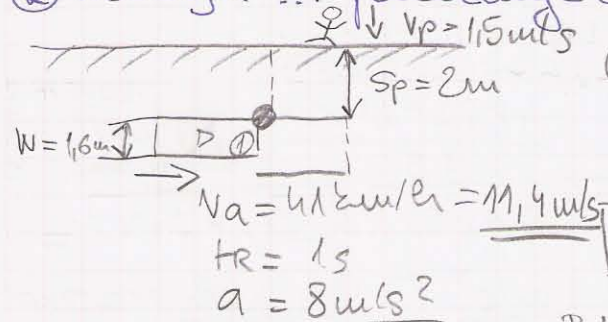
$h = v \cdot t_r = \frac{v}{3,6} \times 1,8 = \frac{v}{2}$

$v$  [km/h]  
 $h$  (m)

⑤  $V_2 = V_1 + a \cdot t_p$   
 $= 15 + 1,5 \cdot 11,1$   
 $= 31,7 \text{ m/s} = \underline{\underline{114 \text{ km/h}}}$

②  $S_0 = L_1 + L_2 + h_1 + h_2$   
 $= 35 + 4 + 27 + 27$   
 $= \underline{\underline{93 \text{ m}}}$  pot odloca (če bi zlova stala)

② Naloga ... prečanje ceste ...



① kje je bit avto...

$t_p = \frac{S_p}{V_p} = \frac{2}{1,5} = \underline{\underline{1,3 \text{ s}}}$  do pape avto zbit

$S_a = V_a \cdot t_p = \frac{41}{3,6} \times 1,3 = 15,2 \text{ m}$  je bit pesca stran

Pot ustavljanja  
 $S_u = V_a \cdot t_r + \frac{V_a^2}{2a} = 11,4 \times 1 + \frac{11,4^2}{2 \times 8} = \underline{\underline{19,5 \text{ m}}}$

$t_p = \frac{S_p + W}{V_p} = \frac{2 + 1,6}{1,5} = 2,4 \text{ s}$

pot avtom  
 $S_a = V_a \cdot t_p + V_a(t_p - t_r) - \frac{a(t_p - t_r)^2}{2}$   
 $= 11,4 \times 2,4 - \frac{8 \times 1,4^2}{2} = \underline{\underline{19,5 > 15,2}}$  tudi če bremena bi ga zadela