

$$3.6 \quad v_b = 0,6 \text{ m/s}, \Delta h = 33,44 \text{ mm}, \\ h_{\xi} = 20,687 \text{ m}$$

$$3.7 \quad v_Q = \frac{F_G}{F_G + F_Q} v_r \cos \alpha, \\ v_G = \frac{F_Q}{F_G + F_Q} v_r \cos \alpha$$

$$3.8 \quad \vec{a} = \frac{F}{3m} \vec{i}, \vec{L}_O = 3mr^2 \omega \vec{k}, \\ \vec{\alpha} = -\frac{Fb}{3mr^2} \vec{k}$$

$$3.9 \quad v = 733,4 \text{ m/s}$$

$$3.10 \quad a_A = 5,233 \text{ m/s}^2, t = 0,5759 \text{ s}, \\ v = 3,624 \text{ m/s}$$

$$3.11 \quad v_z = 0,355 \text{ m/s}$$

Sudar čestica

$$4.1 \quad l = 0,3679 \text{ m}$$

$$4.2 \quad k = 1/3, \Delta E_k = 80\%$$

$$4.3 \quad k = 0,3, \alpha = 60^\circ, \beta = 30^\circ$$

$$4.4 \quad x = 3 \text{ m}, y = 3\sqrt{3} \text{ m}, t = 0,6 \text{ s}, \\ \beta = 73,9^\circ, c = 9,014 \text{ m/s}, \\ \overline{OP} = 9\sqrt{3} \text{ m}$$

$$4.5 \quad H = 5,012 \text{ m}$$

$$4.6 \quad \gamma = 30^\circ, h = 0,2309 \text{ m}, \\ t_A = 0,651 \text{ s}, t_B = 0,217 \text{ s}, \\ t_C = 0,3255 \text{ s}$$

$$4.7 \quad \Delta E_k = -7,063 \text{ J}, L = 1,445 \text{ m} \\ h = 0,716 \text{ m}$$

$$4.8 \quad c_1 = 0,8 \text{ m/s}, c_2 = 2,6 \text{ m/s}$$

$$4.9 \quad y = \sqrt{3}x - 0,1962x^2, \\ y_{(x=6\text{m})} = 3,329 \text{ m}, t = 1,2 \text{ s}, \\ \alpha = -31,9^\circ, v = 5,889 \text{ m/s}, \\ c = 3,992 \text{ m/s}, x_P = 4,5858 \text{ m}$$

$$4.10 \quad c_1 = 3,697 \text{ m/s}, c_2 = 3,357 \text{ m/s}, \\ \Delta E_k = 52 \%$$

$$4.11 \quad m_1/m_2 = 4, k = 1/9$$

$$4.12 \quad c_1 = 3,175 \text{ m/s}, c_2 = 4,16 \text{ m/s}$$

$$4.13 \quad c_1 = 2,22 \text{ m/s}, c_2 = -1 \text{ m/s}, \\ d = 7,849 \text{ m}$$

$$4.14 \quad c_1 = 13,384 \text{ m/s}, c_2 = 6 \text{ m/s}, \\ v_1 = 12,93 \text{ m/s}, k = 1/3, \\ \Delta E_k = -48,11 \text{ J}$$

$$4.15 \quad v_1 = 4,381 \text{ m/s}, c_1 = 1,239 \text{ m/s}, \\ c_2 = -1,171 \text{ m/s}, h = 78,24 \text{ mm}, \\ N_{sr} = 140,5 \text{ N}$$

$$4.16 \quad c_1 = -0,057 \text{ m/s}, c_2 = -1,457 \text{ m/s}, \\ \delta = 65,165 \text{ mm}$$

$$4.17 \quad c_1 = 2,5 \text{ m/s}, c_2 = 12,5 \text{ m/s} \\ (\beta_2 = 53,13^\circ) \\ \Delta E_k = -0,375 \text{ J}, d = 77,77 \text{ m}$$

$$4.18 \quad k = 0,417, c_1 = 0, \\ c_2 = 2,167 \text{ m/s}, F_{12} = 1000 \text{ N}$$

$$4.19 \quad c_A = 2,461 \text{ m/s}, \beta_A = 40,33^\circ, \\ c_B = 9,162 \text{ m/s}, \beta_B = -88,67^\circ,$$

$$4.20 \quad c_1 = 3,305 \text{ m/s}, v_2 = 19,586 \text{ m/s}, \\ c_2 = 19,362 \text{ m/s}, k = 0,188, \\ \Delta E_k = -929,25 \text{ J}$$