

- 3.11 $t = 1 \text{ s}$, $x = -1,088 \text{ m}$,
 $y = -0,8391 \text{ m}$, $v_x = -16,78 \text{ m/s}$,
 $v_y = 5,44 \text{ m/s}$, $v = 17,64 \text{ m/s}$,
 $a_x = 108,8 \text{ m/s}^2$, $a_y = 83,91 \text{ m/s}^2$,
 $a_n = 113,37 \text{ m/s}^2$, $a = 137,4 \text{ m/s}^2$
- 3.12 $\frac{x^2}{4} + \frac{(4-y)^2}{9} = 1$, $z = t$
 (eliptična zavojnica u prostoru),
 $x = 1,73 \text{ cm}$, $y = 2,5 \text{ cm}$, $z = 1 \text{ cm}$,
 $v = 3,082 \text{ cm/s}$, $a_n = 2,381 \text{ cm/s}^2$,
 $a_t = 0,807 \text{ cm/s}^2$, $a = 2,514 \text{ m/s}^2$,
 $\rho = 3,99 \text{ cm}$
- 3.13 $\varphi = 0,25 \text{ rad}$, $r = 1,5 \text{ m}$, $v = 5 \text{ m/s}$,
 $a_r = -16,67 \text{ m/s}^2$, $a_\varphi = 8 \text{ m/s}^2$,
 $a = 18,49 \text{ m/s}^2$
- 3.14 $v_{(x=15)} = 5,943 \text{ m/s}$ ($\alpha = 13,5^\circ$),
 $\rho = 67,98 \text{ m}$,
 $a_n = 0,5195 \text{ m/s}^2$ ($\beta = 103,5^\circ$)
- 3.15 $a_n = 322 \text{ mm/s}^2$ ($\alpha = 63,43^\circ$), $a_t = 0$,
 $\rho = 279,5 \text{ mm}$
- 3.16 $\rho = 87,62 \text{ km}$, $a = 0,9211 \text{ m/s}^2$
 ($\varphi = 105,67^\circ$), $\alpha = 75,96^\circ$
- 3.17 $v_y = -1 \text{ m/s}$, $a_x = 0$, $a_y = 0,5 \text{ m/s}^2$,
 $\rho = 8,762 \text{ m}$, $v = 0,25\sqrt{17} \text{ m/s}$
- 3.18 $x = 1 \text{ m}$, $y = 2,5 \text{ m}$, $v_x = 2 \text{ m/s}$,
 $v_y = 2 \text{ m/s}$,
 $v = 1,414 \text{ m/s}$ (45°), $a_x = 0$,
 $a_y = 4 \text{ m/s}^2$ (90°)
- 3.19 $r = 1,0557 \text{ m}$, $\varphi = 0,2361 \text{ rad}$,
 $v_r = 0,4721 \text{ m/s}$, $v_\varphi = 1,056 \text{ m/s}$,
 $v = 1,1564 \text{ m/s}$
 $a_r = 0,9443 \text{ m/s}^2$, $a_\varphi = 0,9443 \text{ m/s}^2$,
 $a = 1,3354 \text{ m/s}^2$
- 3.20 $v = 0,621 \text{ m/s}$, $a = 0,655 \text{ m/s}^2$,
 $r = 0,4764 \text{ m}$
- 3.21 $v_r = 8,66 \text{ m/s}$, $a_r = 63,92 \text{ m/s}^2$,
 $\rho = 5 \text{ m}$
- 3.22 $r = 0,5 \text{ m}$, $\varphi = -0,5 \text{ rad}$, $\rho = 1,355 \text{ m}$,
 $a_r = -31 \text{ m/s}^2$, $a_n = 14,76 \text{ m/s}^2$,
 $a_t = 27,28 \text{ m/s}^2$
- 3.23 $v_r = 1 \text{ m/s}$, $v_\varphi = 4 \text{ m/s}$, $a_\varphi = -2 \text{ m/s}^2$
- 3.24 $v = 6,403 \text{ m/s}$, $a = 11,7 \text{ m/s}^2$
- 3.25 $v_r = 1 \text{ m/s}$, $v_\varphi = 0,75 \text{ m/s}$,
 $v = 1,25 \text{ m/s}$, $\rho = 3,049 \text{ m}$,
 $a_r = -0,6875 \text{ m/s}^2$, $a_\varphi = 0,125 \text{ m/s}^2$,
 $a = 0,6988 \text{ m/s}^2$
- 3.26 $\rho = 6191 \text{ m}$, $\varphi = 1,065 \text{ rad}$,
 $z = 1451 \text{ m}$, $v_\rho = 99,23 \text{ m/s}$,
 $v_\varphi = 54,97 \text{ m/s}$, $v_z = 30,4 \text{ m/s}$,
 $v_A = 117,4 \text{ m/s}$
- 3.27 $a = 27,46 \text{ m/s}^2$, ($a = 2,8g$),
 $\gamma = 74,11^\circ + 180^\circ$ (mjereno od osi z)
- 3.28 $v = \frac{c}{\sin \varphi}$, $a = \frac{c^2}{r} \frac{1}{\sin^3 \varphi}$
- 3.29 $\alpha = 90^\circ - \beta$ iz $\frac{d}{dt}[f(v,t) = 0] = 0$
- 3.30 $v_r = \frac{bv \sin \beta}{\sqrt{4b^2 \sin^2 \frac{\beta}{2} + h^2}}$,
 $v_\varphi = v \sin \frac{\beta}{2}$,
 $v_\beta = \frac{-hv \cos \frac{\beta}{2}}{\sqrt{4b^2 \sin^2 \frac{\beta}{2} + h^2}}$