$\Pi^*(\alpha_1^*) = \alpha_1^*$

$\Pi^*(\alpha_2^*) = \alpha_2^*$

$\Pi^*(\alpha_3^*) = 0$

$\ker \Pi^* = \operatorname{lin}(\alpha_3^*)$ W bazie $\alpha_1^*, \alpha_2^*, \alpha_3^*$ baza $\ker \Pi^* = \{(0,0,1)\}$

$\operatorname{im} \Pi^* = \operatorname{lin}(\alpha_1^*, \alpha_2^*)$ W bazie — // — baza $\operatorname{im} \Pi^* = \{(1,0,0), (0,1,0)\}$

iii) $\Pi^*(f) = f \circ \Pi$

$f((x,y,z)) = x+y+z$

$\Pi(x_1,x_2,x_3) = (x_1, x_2, x_2 - x_1)$

$\Pi^*(f)(x_1,x_2,x_3) = x_1 + x_2 + x_2 - x_1 = 2x_2.$