Zadatak 3.

Za proizvoljni $u \in [0,1]$ i $r_i = (1-u)p_i + up_{i+1}$, $i = 0,1,2$

$s_i = (1-u)r_i + ur_{i+1}$, $i = 0,1$

$t_0 = (1-u)s_0 + us_1$

Vrijedi $f(u) = t_0$.

$b_{i,n} = \binom{n}{i}(1-u)^{n-i}u^i$

za $n=3 \Rightarrow b_{i,3}(u) = \binom{3}{i}(1-u)^{3-i}u^i$

$b_0(u) = (1-u)^3$
$b_1(u) = 3u(1-u)^2$
$b_2(u) = 3u^2(1-u)$
$b_3(u) = u^3$

$\Rightarrow T(u) = (1-u)^3 p_0 + 3u(1-u)^2 p_1 + 3u^2(1-u)p_2 + u^3 p_3$

$f(u) = t_0$

$t_0 = (1-u)s_0 + us_1$

$= (1-u)((1-u)r_0 + ur_1) + u((1-u)r_1 + ur_2)$

$= (1-u)^2 r_0 + 2u(1-u)r_1 + u^2 r_2$

$= (1-u)^2((1-u)p_0 + up_1) + 2u(1-u)((1-u)p_1 + up_2) + u^2((1-u)p_2 + up_3)$

$= (1-u)^3 p_0 + 3u(1-u)^2 p_1 + 3u^2(1-u)p_2 + u^3 p_3 = T(u)$.