Zadaća 4.

Zad. 3.

Za proizvoljni $u \in [0,1]$

$r_i = (1-u) p_i + u p_{i+1}$, $i = 0,1,2$

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

$t_0 = (1-u) s_0 + u s_1$

$\Rightarrow f(u) = t_0$

DOKAZ: $f(u) = B_0(u) p_0 + B_1(u) p_1 + B_2(u) p_2 + B_3(u) p_3$

$B_k(t) = \binom{n}{k} t^k (1-t)^{n-k}$, uzimamo $n=3$

$$\left.\begin{array}{l} B_0(u) = (1-u)^3 \\ B_1(u) = 3u(1-u)^2 \\ B_2(u) = 3u^2(1-u) \\ B_3(u) = u^3 \end{array}\right\} f(u) = (1-u)^3 p_0 + 3u(1-u)^2 p_1 + 3u^2(1-u) p_2 + u^3 r_3$$

$$t_0 = (1-u)s_0 + u s_1 = (1-u)\big((1-u)((1-u)p_0 + u p_1) + u((1-u)p_1 + u p_2)\big)$$
$$+ u\big((1-u)((1-u)p_1 + u p_2) + u((1-u)p_2 + u p_3)\big) =$$
$$= \ldots = (1-u)^3 p_0 + (1-u)^2 u p_1 + 2u(1-u)^2 p_1 + 2u^2(1-u) p_2 +$$
$$u^2(1-u)p_2 + u^3 p_3 = (1-u)^3 p_0 + 3u(1-u)^2 p_1 + 3u^2(1-u) p_2 + u^3 p_3$$
$$\underline{= f(u)}$$