

# Rešitve nalog: Skalarni produkt

## 1 Skalarni produkt in ortogonalne baze

1.1. Npr.  $\{1, x - 2, x^2 - 4x + \frac{10}{3}\}$

1.2.  $\langle p, q \rangle = p(1)q(1) + p'(0)q'(0) + \frac{p''(0)q''(0)}{4}, \varphi = \frac{\pi}{3}$

1.3. Npr.  $\{(1, -1, 1, 1), (-3, 3, 1, 5)\}$

1.4. Npr.  $\{(2, -1, 1, 0), (0, 0, 0, 1)\}$

1.5. 
$$\begin{bmatrix} \frac{3}{4} & \frac{1}{4} & -\frac{1}{4} & \frac{1}{4} \\ \frac{1}{4} & \frac{3}{4} & \frac{1}{4} & -\frac{1}{4} \\ -\frac{1}{4} & \frac{1}{4} & \frac{3}{4} & \frac{1}{4} \\ \frac{1}{4} & -\frac{1}{4} & \frac{1}{4} & \frac{3}{4} \end{bmatrix}$$

1.6.  $(5, -5, -2, -1)$

## 2 Rieszov izrek

2.1.  $f(x, y, z) = 8x + 7y + 13z.$

2.2.  $q(x) = \frac{5-3x}{4}$