

1.
 - a) ano
 - b) ne
 - c) ano
 - d) ano
2.
 - a) LN
 - b) LZ
 - c) LN
3.
 - a) LZ
 - b) LN
4.
 - a) $r = 3$
 - b) pro žádné r z \mathbb{R}
5.
 - a) $\alpha = u_1, u_3$, $\dim M = 2$
 - b) $\alpha = u_1, u_4$, $\dim M = 2$
 - c) $\alpha = u_1, u_2, u_3, u_4$, $\dim M = 4$
 - d) $\alpha = u_1, u_2, u_5$, $\dim M = 3$
 - e) $\alpha = \{2x-1, x^3+x+1, x^2+x\}$, $\dim M = 3$

6.

- a) $A = \begin{pmatrix} -3 & -8 \\ 5 & 11 \end{pmatrix}, [w]_{\alpha} = \begin{pmatrix} -30 \\ 43 \end{pmatrix}$
- b) $B = \begin{pmatrix} \frac{3}{4} & \frac{3}{4} & \frac{1}{12} \\ -\frac{3}{4} & -\frac{4}{2} & -\frac{17}{12} \\ 0 & \frac{2}{3} & \frac{2}{3} \end{pmatrix}, [w]_{\alpha} = \begin{pmatrix} \frac{11}{6} \\ -\frac{1}{2} \\ 2 \end{pmatrix}$
- c) $C = \begin{pmatrix} 1 & -1 & 1 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{pmatrix}, [w]_{\alpha} = 5x^2 - x - 2$