

PÖÖRDMAATRIKS

I Leida matriksi pöördmatriks ning kontrollida.

$$1) \begin{pmatrix} 4 & 9 \\ -3 & 1 \end{pmatrix} \quad \mathbf{V}: \begin{pmatrix} \frac{1}{31} & -\frac{9}{31} \\ \frac{3}{31} & \frac{4}{31} \end{pmatrix} \quad 6) \begin{pmatrix} 1 & 2 & -1 \\ 2 & 3 & 1 \\ -1 & 0 & 2 \end{pmatrix} \quad \mathbf{V}: \begin{pmatrix} -\frac{6}{7} & \frac{4}{7} & \frac{-5}{7} \\ \frac{5}{7} & -\frac{1}{7} & \frac{3}{7} \\ -\frac{3}{7} & \frac{2}{7} & \frac{1}{7} \end{pmatrix}$$

$$2) \begin{pmatrix} 2 & -3 \\ 5 & -4 \end{pmatrix} \quad \mathbf{V}: \begin{pmatrix} -\frac{4}{7} & \frac{3}{7} \\ \frac{7}{7} & \frac{7}{7} \\ -\frac{5}{7} & \frac{2}{7} \\ \frac{7}{7} & \frac{7}{7} \end{pmatrix} \quad 7) \begin{pmatrix} 4 & -2 & 0 \\ -3 & 3 & 1 \\ 5 & -2 & -1 \end{pmatrix} \quad \mathbf{V}: \begin{pmatrix} \frac{1}{8} & \frac{1}{4} & \frac{1}{4} \\ \frac{8}{4} & \frac{4}{2} & \frac{4}{2} \\ -\frac{1}{4} & \frac{1}{2} & \frac{1}{2} \\ \frac{9}{8} & \frac{1}{4} & \frac{-3}{4} \\ \frac{8}{8} & \frac{4}{4} & \frac{4}{4} \end{pmatrix}$$

$$3) \begin{pmatrix} 0 & 8 \\ -4 & 7 \end{pmatrix} \quad \mathbf{V}: \begin{pmatrix} \frac{7}{32} & \frac{-1}{4} \\ \frac{1}{8} & 0 \end{pmatrix} \quad 8) \quad \mathbf{V}: \begin{pmatrix} -\frac{13}{14} & -\frac{75}{8} & \frac{31}{8} & \frac{7}{2} \\ \frac{19}{8} & -\frac{117}{16} & \frac{49}{16} & \frac{11}{4} \\ -\frac{8}{23} & -\frac{16}{141} & \frac{16}{57} & \frac{4}{13} \\ -\frac{4}{17} & \frac{8}{103} & \frac{8}{43} & \frac{2}{9} \\ \frac{8}{8} & \frac{6}{6} & -\frac{16}{16} & -\frac{4}{4} \end{pmatrix}$$

$$4) \begin{pmatrix} 1 & 0 & 1 \\ 2 & 1 & 2 \\ 4 & 1 & 3 \end{pmatrix} \quad \mathbf{V}: \begin{pmatrix} -1 & -1 & 1 \\ -2 & 1 & 0 \\ 2 & 1 & -1 \end{pmatrix}$$

$$5) \begin{pmatrix} 1 & 2 & 3 \\ -1 & 1 & 2 \\ 1 & 3 & 5 \end{pmatrix} \quad \mathbf{V}: \begin{pmatrix} -1 & -1 & 1 \\ 7 & 2 & 5 \\ -4 & -1 & 3 \end{pmatrix}$$

II Leida $AC^{-1} + CA^{-1}$, kui $A = \begin{pmatrix} -2 & 6 \\ -1 & 4 \end{pmatrix}$ ja $C = \begin{pmatrix} 0 & -3 \\ 4 & -2 \end{pmatrix}$. *Vastus:* $\begin{pmatrix} -\frac{1}{6} & \frac{-7}{2} \\ \frac{6}{-49} & \frac{39}{4} \\ \frac{6}{6} & \frac{4}{4} \end{pmatrix}$

III Leida $2A^{-1} + 3A^T - A^2$, kui $A = \begin{pmatrix} -2 & 6 \\ -1 & 4 \end{pmatrix}$. *Vastus:* $\begin{pmatrix} -8 & -9 \\ 19 & 4 \end{pmatrix}$

IV Leida $(AB)^{-1} + AA^{-1}$, kui

$$A = \begin{pmatrix} 2 & 0 & 0 \\ 0 & 1 & 0 \\ -6 & -1 & 2 \end{pmatrix}, \quad B = \begin{pmatrix} -1 & 4 & -4 \\ 0 & 1 & -2 \\ 0 & 0 & 1 \end{pmatrix}. \quad \text{Vastus: } \begin{pmatrix} \frac{13}{2} & 6 & 2 \\ 3 & 3 & 1 \\ \frac{3}{2} & \frac{1}{2} & \frac{3}{2} \end{pmatrix}$$