

$$5 + \frac{(\lambda+12)(\lambda-10)}{21} = 0$$

$$\textcircled{1} 1 + \frac{\lambda-10}{7} = 0$$

$$105 + \lambda^2 - 10\lambda + 12\lambda - 120 = 0$$

$$7 + \lambda - 10 = 0$$

$$\lambda^2 + 2\lambda - 15 = 0$$

$$\lambda = 3$$

$$\lambda_{1,2} = \frac{-2 \pm \sqrt{4 - 4 \cdot (-15)}}{2}$$

$$\rightarrow \lambda_1 = \frac{-2 + 8}{2} = \underline{\underline{3}}$$

$$\rightarrow \lambda_2 = \frac{-2 - 8}{2} = \underline{\underline{-5}}$$

Ha $\lambda = 3$ a matrix rangja 2 ha λ nem + 3 alhas a rang 3.

$$\textcircled{6} (4\lambda_1 + 7\lambda_2 + 4\lambda_3; 4\lambda_1 + 2\lambda_2 + 1\lambda_3; 3\lambda_1 + 1\lambda_2 + 6\lambda_3) = (5, 9, 2)$$

$$\left(\begin{array}{ccc|c} 4 & 7 & 4 & 5 \\ 4 & 2 & 1 & 9 \\ 3 & 1 & 6 & 2 \end{array} \right) \sim \left(\begin{array}{ccc|c} 4 & 7 & 4 & 5 \\ 0 & -5 & -3 & 4 \\ 0 & -\frac{17}{4} & 3 & 2 - \frac{15}{4} \end{array} \right) \sim \left(\begin{array}{ccc|c} 4 & 7 & 4 & 5 \\ 0 & -5 & -3 & 4 \\ 0 & +17 & -3 & -4\lambda + 15 \end{array} \right) \sim$$

$$\left(\begin{array}{ccc|c} 4 & 7 & 4 & 5 \\ 0 & -5 & -3 & 4 \\ 0 & 0 & -\frac{66}{5} & -4\lambda + 15 - \frac{17}{5} \cdot (-4) \end{array} \right)$$