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$$A=\begin{pmatrix}1&2&3\\3&1&2\\2&3&1\end{pmatrix}$$

a) $\det A = (1+8+27-9-6-6) = 36-18 = 18$

$$B=\begin{pmatrix}2&0&1\\1&1&1\\2&0&2\end{pmatrix} \Rightarrow B'=\begin{pmatrix}2&1&2\\0&1&0\\1&1&2\end{pmatrix}$$

$$B'A=\begin{pmatrix}4&11&10\\3&1&2\\8&9&6\end{pmatrix}$$

$$B'A=\begin{pmatrix}2&1&2\\0&1&0\\1&1&2\end{pmatrix}\begin{pmatrix}1&2&3\\3&1&2\\2&3&1\end{pmatrix}\begin{pmatrix}4&11&10\\3&1&2\\8&9&7\end{pmatrix}$$

$$|B'A| = \begin{pmatrix}4&11&10\\3&1&2\\8&9&7\end{pmatrix} \xleftarrow{\cdot(-1)} \begin{pmatrix}1&2&3\\3&1&2\\8&9&7\end{pmatrix} \xrightarrow[\cdot(-8)]{\cdot(-3)} \begin{pmatrix}1&2&4\\0&1&\frac{7}{5}\\0&-7&-\frac{65}{5}\end{pmatrix} \xrightarrow{\cdot 7} \begin{pmatrix}1&2&4\\0&1&2\\0&0&-\frac{36}{5}\end{pmatrix}$$

$$|B'A| = 1\cdot 1\cdot\left(-\tfrac{36}{5}\right)\cdot\left(-\tfrac{1}{5}\right) = 36$$

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$$A = \begin{pmatrix} t-2 & 4 & -t \\ -3 & 1 & t \\ t-2 & -7 & 4 \end{pmatrix} \begin{matrix} \\ \\ \downarrow \end{matrix} \begin{pmatrix} -5 & 5 & 0 \\ -3 & 1 & t \\ t-4 & -7 & 4 \end{pmatrix} \begin{matrix} \\ \\ \downarrow \end{matrix} = \begin{matrix} -5 & 5 & 0 & -5 & 5 \\ -3 & 1 & t & -3 & 1 \\ t-2 & -7 & 4 & t-2 & -7 \end{matrix}$$

$|A| = -20 + 5t^2 - 10t + t0 - 0 - 35t + t60$

$40 + 5t^2 - 45t = 5(t-1)(t-8)$

Vha af nulreglen er $t = 1$ eller $t = 8$