Bài 8: Find A^{-1}

a/

$A^2 - 6A + 5I = 0$

$\Leftrightarrow A(A - 6I) = -5I$

$\Leftrightarrow A^{-1} \cdot A \cdot (A - 6I) = A^{-1} \cdot (-5I)$

$\Leftrightarrow A - 6I = -5 \cdot A^{-1}$

$\Rightarrow A^{-1} = \frac{A - 6I}{-5} = \frac{-1}{5} \cdot (A - 6I)$

b/

$A^2 + 3A - I = 0$

$\Leftrightarrow A(A + 3I) = I$

$\Rightarrow (A + 3I) = A^{-1}$

$\Rightarrow A^{-1} = A + 3I$

c/ $A^4 = I$.

$\Rightarrow A^3 = A^{-1}$

$\Rightarrow A^{-1} = A^3$.

Bài 9:

a/ $\begin{pmatrix} 1 & 2 \\ 2 & 3 \end{pmatrix} X = \begin{pmatrix} 1 & -1 \\ 3 & 3 \end{pmatrix}$

Đặt $A = \begin{pmatrix} 1 & 2 \\ 2 & 3 \end{pmatrix}$, $B = \begin{pmatrix} 1 & -1 \\ 3 & 3 \end{pmatrix}$

$\Rightarrow X = A^{-1} \cdot B$ $\begin{pmatrix} 3 & 5 \end{pmatrix}$