

§ 2.1

6 $AB = [Ab_1, Ab_2] = \begin{bmatrix} 0 & 14 \\ -3 & -9 \\ 13 & 4 \end{bmatrix}$

8 3 rows

10 $AB = AC = \begin{bmatrix} 1 & -7 \\ -2 & 14 \end{bmatrix}$

§ 2.2

4 $\begin{bmatrix} 3 & -4 \\ 7 & -8 \end{bmatrix}^{-1} = \frac{1}{3(-8) - (-4)(7)} \begin{bmatrix} -8 & 4 \\ -7 & 3 \end{bmatrix} = \begin{bmatrix} -2 & 1 \\ -7/4 & 3/4 \end{bmatrix}$

6 $\begin{bmatrix} 3 & 5 \\ -7 & -5 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \begin{bmatrix} -9 \\ 11 \end{bmatrix} \Rightarrow x = A^{-1}b = \begin{bmatrix} 2 \\ -5 \end{bmatrix}$
A x b compute as in #4

14 $(B-C)D = 0 \Rightarrow (B-C)DD^{-1} = 0D^{-1}$
 $\Rightarrow B-C = 0 \Rightarrow B=C$

18 $A = PBP^{-1} \Rightarrow P^{-1}AP = P^{-1}(PBP^{-1})P$
 $= (P^{-1}P)B(P^{-1}P) = B$

so $\boxed{B = P^{-1}AP}$

32 $\left[\begin{array}{ccc|ccc} 1 & -2 & 1 & 1 & 0 & 0 \\ 4 & -7 & 3 & 0 & 1 & 0 \\ -2 & 6 & -4 & 0 & 0 & 1 \end{array} \right] \rightarrow \left[\begin{array}{ccc|ccc} 1 & 0 & 0 & * & * & * \\ 0 & 1 & 0 & * & * & * \\ 0 & 0 & 1 & * & * & * \end{array} \right]$

so A^{-1} does not exist