Homework 11, Section 2.2; 7, 10, 12, 14, 15, 18

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Homework

7. A)

$A^-1b_1 = \begin{bmatrix} -9 \\ 4 \end{bmatrix}$ $A^-1b_2 = \begin{bmatrix} 11 \\ -5 \end{bmatrix}$ $A^-1b_3 = \begin{bmatrix} 6 \\ -2 \end{bmatrix}$ $A^-1b_4 = \begin{bmatrix} 13 \\ -5 \end{bmatrix}$

7. B)

The solutions are the same as in part A. $A^-1b_1 = \begin{bmatrix} -9 \\ 4 \end{bmatrix}$ $A^-1b_2 = \begin{bmatrix} 11 \\ -5 \end{bmatrix}$ $A^-1b_3 = \begin{bmatrix} 6 \\ -2 \end{bmatrix}$ $A^-1b_4 = \begin{bmatrix} 13 \\ -5 \end{bmatrix}$

10. A)

False. The product matrix is invertible, but the product of inverses should be in the reverse order.

10. B)

True, theorem 6a.

10. C)

True, by theorem 4.

10. D)

True, by theorem 7.

10. E)

False, The theorem is not correct.

12.

14.

$(BC)DD^1 = 0D^1, (BC)I = 0, BC = 0, andB = C.$

15.

$(ABC)C^1B^1A^1 = ABCC^1B^1A^1 = ABIB^1A^1 = ABB^1A^1 = AIA^1 = AA^1 = I$

18.

$P^1A = P^1PBP^1,\ P^1A = IBP^1,\ P^1A = BP^1$