WebAssign
CH 1.2 (Homework)

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MA 265 Spring 2013, section 132, Spring 2013
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Current Score : 20 / 20 **Due :** Thursday, January 17 2013 11:40 PM EST

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1. 5/5 points | Previous Answers KolmanLinAlg9 1.2.004.

If

$$\begin{bmatrix} a+b & c+d \\ c-d & a-b \end{bmatrix} = \begin{bmatrix} 5 & 5 \\ 11 & 3 \end{bmatrix},$$

find a, b, c, and d.

a = 4

b = 1

c = 8

d = -3

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2. 5/5 points | Previous Answers KolmanLinAlg9 1.2.006.

Let

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 1 & 4 \end{bmatrix}, \quad B = \begin{bmatrix} 1 & 0 \\ 2 & 1 \\ 3 & 2 \end{bmatrix},$$

$$C = \begin{bmatrix} 2 & -1 & 3 \\ 4 & 1 & 5 \\ 2 & 1 & 5 \end{bmatrix}, \quad D = \begin{bmatrix} 3 & -2 \\ 2 & 4 \end{bmatrix},$$

$$E = \begin{bmatrix} 2 & -4 & 5 \\ 0 & 1 & 4 \\ 3 & 2 & 1 \end{bmatrix}, \quad F = \begin{bmatrix} -1 & 5 \\ 2 & 1 \end{bmatrix},$$

$$\text{and } O = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}.$$

If possible, compute the indicated linear combination. (If not possible, enter DNE into any cell of the matrix.)

(a) $C + E$ and $E + C$

$$C + E = \begin{bmatrix} 4 & -5 & 8 \\ 4 & 2 & 9 \\ 5 & 3 & 6 \end{bmatrix}$$

4	-5	8

$E + C = \begin{bmatrix} 4 & 2 & 9 \\ 5 & 3 & 6 \end{bmatrix}$

(b) $A + B$

DNE		

(c) $D - F$

4	−7	
0	3	

(d) $-3C + 5O$

−6	3	−9
−12	−3	−15
−6	−3	−15

(e) $2C - 3E$

−2	10	−9
8	−1	−2
−5	−4	7

(f) $2B + F$

DNE		

3. 5/5 points | Previous Answers KolmanLinAlg9 1.2.008.

Let

$$A = \begin{bmatrix} 1 & 2 & 4 \\ 2 & 1 & 3 \end{bmatrix}, \quad B = \begin{bmatrix} 1 & 0 \\ 2 & 1 \\ 3 & 2 \end{bmatrix},$$

$$C = \begin{bmatrix} 4 & -1 & 3 \\ 4 & 2 & 5 \\ 2 & 1 & 5 \end{bmatrix}, \quad D = \begin{bmatrix} 3 & -2 \\ 4 & 4 \end{bmatrix},$$

$$E = \begin{bmatrix} 2 & -4 & 5 \\ 0 & 1 & 4 \\ 3 & 2 & 1 \end{bmatrix}, \quad F = \begin{bmatrix} -4 & 5 \\ 2 & 3 \end{bmatrix},$$

$$\text{and } O = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}.$$

If possible, compute the following. (If not possible, enter DNE into any cell of the matrix.)

(a) A^T and $(A^T)^T$

$A^T =$

1	2	
2	1	
4	3	

$(A^T)^T =$

1	2	4
2	1	3

(b) $(C + E)^T$ and $C^T + E^T$

$(C + E)^T =$

6	4	5
-5	3	3
8	9	6

6	4	5
-5	3	3

$C^T + E^T =$

8	9	6

(c) $(2D + 3F)^T$

-6	14	
11	17	

(d) $D - D^T$

0	-6	
6	0	

(e) $2A^T + B$

3	4	
6	3	
11	8	

(f) $(3D - 2F)^T$

17	8	
-16	6	

4. 5/5 points | Previous Answers KolmanLinAlg9 1.2.010.

Is the matrix $\begin{bmatrix} 5 & 0 \\ 0 & 4 \end{bmatrix}$ a linear combination of the matrices $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ and $\begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix}$?

- (•) Yes
- ( ) No