Feedback — Assignment 4: Matrix Algebra

You submitted this homework on **Thu 10 Jan 2013 8:41 PM PST**.
You got a score of **110.00** out of **110.00**.

Questions 1 - 9 refer to the following matrices and vectors:

$$A = \begin{pmatrix} 1 & 4 & 7 \\ 2 & 4 & 8 \\ 6 & 1 & 3 \end{pmatrix}, B = \begin{pmatrix} 4 & 4 & 0 \\ 5 & 9 & 1 \\ 2 & 2 & 5 \end{pmatrix}, x = \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}, y = \begin{pmatrix} 5 \\ 2 \\ 7 \end{pmatrix}$$

Question 1

(10) Compute the transpose of A.

Your Answer		Score	Explanation
$A' = \begin{pmatrix} 1 & 2 & 6 \\ 4 & 4 & 1 \\ 7 & 8 & 3 \end{pmatrix}$	✔	10.00	
Total		10.00 / 10.00	

Question 2

(10) Compute the transpose of B.

Your Answer		Score	Explanation
$B' = \begin{pmatrix} 4 & 5 & 2 \\ 4 & 9 & 2 \\ 0 & 1 & 5 \end{pmatrix}$	✔	10.00	

Total	10.00 / 10.00

Question 3

(5) Compute the transpose of x.

Your Answer		Score	Explanation
◉ $x' = \begin{pmatrix} 1 & 2 & 3 \end{pmatrix}$	✔	5.00	
Total		5.00 / 5.00	

Question 4

(5) Compute the transpose of y.

Your Answer		Score	Explanation
◉ $y' = \begin{pmatrix} 5 & 2 & 7 \end{pmatrix}$	✔	5.00	
Total		5.00 / 5.00	

Question 5

(10) Compute $A + B$.

Your Answer		Score	Explanation
◉	✔	10.00	

$$A+B=\begin{pmatrix}5 & 8 & 7\\ 7 & 13 & 9\\ 8 & 3 & 8\end{pmatrix}$$

Total	10.00 / 10.00

Question 6

(10) Compute $A-B$.

Your Answer		Score	Explanation
$A-B=\begin{pmatrix}-3 & 0 & 7\\ -3 & -5 & 7\\ 4 & -1 & -2\end{pmatrix}$	✔	10.00	

Total	10.00 / 10.00

Question 7

(10) Compute $2*A$.

Your Answer		Score	Explanation
$2*A=\begin{pmatrix}2 & 8 & 14\\ 4 & 8 & 16\\ 12 & 2 & 6\end{pmatrix}$	✔	10.00	

Total	10.00 / 10.00

Question 8

(10) Compute Ax.

Your Answer		Score	Explanation
$Ax = \begin{pmatrix} 30 \\ 34 \\ 17 \end{pmatrix}$	✔	10.00	
Total		10.00 / 10.00	

Question 9

(10) Compute $y'Ax$.

Your Answer		Score	Explanation
337	✔	10.00	
Total		10.00 / 10.00	

Question 10

(10) Consider the system of equations:

$$z_1 + z_2 = 1,$$

$$2z_1 + 4z_2 = 2$$

Write the system using matrix notation as $Az = b$ and solve for z.

Your Answer	Score	Explanation

◉	✔	10.00

$$z = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

Total	10.00 / 10.00

Question 11

Consider creating a portfolio of three assets denoted A, B and C. Assume the following information:

$$\mu = \begin{pmatrix} 0.01 \\ 0.04 \\ 0.02 \end{pmatrix}, \Sigma = \begin{pmatrix} 0.10 & 0.30 & 0.10 \\ 0.30 & 0.15 & -0.20 \\ 0.10 & -0.20 & 0.08 \end{pmatrix}$$

(10) Compute the expected return for an equally weighted portfolio (i.e., $x_A = x_B = x_C =$1/3).

Your Answer		Score	Explanation
◉ 0.023	✔	10.00	
Total		10.00 / 10.00	

Question 12

(10) Continuing from the previous question, what is the variance for an equally weighted portfolio?

Your Answer		Score	Explanation
◉ 0.081	✔	10.00	
Total		10.00 / 10.00	