

CS3101N - Discrete Structures
Algebra of Matrices

Submitted by:

Rosales, Jade Andrie
Samson, Jose Glen
Stewart, Christian Anthony

Submitted to:

Margie Baterna

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<p>A</p> <table><tr><td>1</td><td>-1</td><td>2</td></tr><tr><td>0</td><td>3</td><td>4</td></tr></table>	1	-1	2	0	3	4	<p>B</p> <table><tr><td>4</td><td>0</td><td>-3</td></tr><tr><td>-1</td><td>-2</td><td>3</td></tr></table>	4	0	-3	-1	-2	3			
1	-1	2														
0	3	4														
4	0	-3														
-1	-2	3														
<p>C</p> <table><tr><td>2</td><td>-3</td><td>0</td><td>1</td></tr><tr><td>5</td><td>-1</td><td>-4</td><td>2</td></tr><tr><td>-1</td><td>0</td><td>0</td><td>3</td></tr></table>	2	-3	0	1	5	-1	-4	2	-1	0	0	3	<p>C</p> <table><tr><td>2</td></tr><tr><td>-1</td></tr><tr><td>3</td></tr></table>	2	-1	3
2	-3	0	1													
5	-1	-4	2													
-1	0	0	3													
2																
-1																
3																

2.41.

a.) $3A - 4B$

Cannot be multiplied

b.) AC

-5	-2	4	5
11	-3	-12	18

c.) BC

11	-12	0	-5
-15	5	8	4

d.) AD

9
9

e.) BD

-1
9

f.) CD

Cannot be multiplied

2.42.

a.) A'

1	0
-1	3
2	4

b.) A'B

4	0	-3
-7	-6	12
4	-8	6

c.) A'C

Cannot be multiplied

2.49

A			B			C		
2	-5	8	1	3	-4	4	3	-6
3	-6	-7	6	1	7	2	-5	0
4	0	-1	2	-5	-1			

a.) Diagonal: 2, -6, -1

Trace: $2 + -6 + -1 = -5$

b.) Diagonal: 1, 1, -1

Trace: $1 + 1 + -1 = 1$

c.) Not a square matrix