Web**Assign**
CH B.1 (Homework)

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MA 265 Spring 2013, section 132, Spring 2013
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Current Score : 20 / 20 **Due :** Thursday, April 18 2013 11:40 PM EDT

The due date for this assignment is past. Your work can be viewed below, but no changes can be made.

Important! Before you view the answer key, decide whether or not you plan to request an extension. Your Instructor may *not* grant you an extension if you have viewed the answer key. Automatic extensions are not granted if you have viewed the answer key.

Request Extension View Key

1. 5/5 points | Previous Answers KolmanLinAlg9 B.1.001.

Let $c_1 = 4 + 4i$, $c_2 = 1 - 3i$, and $c_3 = -1 + i$. Compute each of the following and simplify as much as possible:

(a) $c_1 + c_2$

(b) $c_3 - c_1$

(c) $c_1\, c_2$

(d) $c_2\, \overline{c_3}$

(e) $4c_3 + \overline{c_2}$

(f) $(-i) \cdot c_2$

(g) $\overline{3c_1} - \overline{ic_2}$

(h) $c_1\, c_2\, c_3$

2. 5/5 points | Previous Answers KolmanLinAlg9 B.1.002.

Write in the form $a + bi$.

(a) $\dfrac{5 + 3i}{3 - 4i}$

(b) $\dfrac{4 - 2i}{3 - i}$

(c) $\dfrac{(2 + i)^2}{i}$

(d) $\dfrac{1}{(4 + 5i)(1 + i)}$

3. 5/5 points | Previous Answers KolmanLinAlg9 B.1.007.

Let

$$A = \begin{bmatrix} 3 + 3i & -1 + 2i \\ -3 & 1 - i \end{bmatrix}, \quad B = \begin{bmatrix} 2i & 1 + 3i \\ 0 & 2 - i \end{bmatrix}, \quad C = \begin{bmatrix} 2 + i \\ -i \end{bmatrix}.$$

Compute each of the following and simplify each entry as $a + bi$:

(a) $A + B$

3+5i	5i
-3	3-2i

(b) $(1 - 2i)C$

4−3i	
−2−i	

(c) AB

−6+6i	−6+17i
−6i	−2−12i

(d) BC

1+3i	
−1−2i	

(e) $A - 2I_2$

1+3i	−1+2i
−3	−1−i

(f) $\overline{B}$

−2i	1−3i
0	2+i

(g) $A\overline{C}$

7+2i	
−5+4i	

(h) $(\overline{A + B})C$

6−7i	
−4−6i	

4. 5/5 points | Previous Answers KolmanLinAlg9 B.1.009.

If $A = \begin{bmatrix} 0 & i \\ i & 0 \end{bmatrix}$, compute A^2, A^3, and A^4.

$A^2 =$ | −1 | 0 |
|---|---|
| 0 | −1 |

$A^3 =$ | 0 | −i |
|---|---|
| −i | 0 |

$A^4 =$ | 1 | 0 |
|---|---|
| 0 | 1 |

Give a general rule for A^n, n a positive integer.

$A^{4n} = ?$

- ○ A
- ○ $-A$
- ◉ I_2
- ○ $-I_2$

$A^{4n+1} = ?$

- ◉ A
- ○ $-A$
- ○ I_2
- ○ $-I_2$

$A^{4n+2} = ?$

- ○ A
- ○ $-A$
- ○ I_2
- ◉ $-I_2$ ✔

$A^{4n+3} = ?$

- ○ A
- ◉ $-A$
- ○ I_2
- ○ $-I_2$ ✔