

CHAPTER EXERCISE: Answers for this chapter start on page 296.

A calculator should NOT be used on the following questions.

1

For $i = \sqrt{-1}$, which of the following is equivalent to $(5 - 3i) - (-2 + 5i)$?

- A) $3 - 8i$
- B) $3 + 2i$
- C) $7 - 8i$
- D) $7 + 2i$

2

Given that $i = \sqrt{-1}$, which of the following is equal to $i(i + 1)$?

- A) $i - 2$
- B) $i - 1$
- C) $i + 1$
- D) 0

3

$$i^4 + 3i^2 + 2$$

Which of the following is equal to the expression above? (Note: $i = \sqrt{-1}$)

- A) i
- B) -1
- C) 0
- D) 1

4

$$(6 + 2i)(2 + 5i)$$

If the expression above is equivalent to $a + bi$, where a and b are constants, what is the value of a ?

- A) 2
- B) 12
- C) 22
- D) 34

5

Which of the following is equal to $3(i + 2) - 2(5 - 4i)$? (Note: $i = \sqrt{-1}$)

- A) $16 - 5i$
- B) $-4 + 7i$
- C) $-4 + 11i$
- D) $16 + 11i$

6

For $i = \sqrt{-1}$, which of the following is equivalent to $3i(i + 2) - i(i - 1)$?

- A) $-4 + 7i$
- B) $-2 + 7i$
- C) $-4 + 5i$
- D) $-2 + 5i$

7

For $i = \sqrt{-1}$, which of the following is equal to i^{93} ?

- A) -1
- B) 1
- C) $-i$
- D) i

8

Which of the following complex numbers is equivalent to $(3 - i)^2$? (Note: $i = \sqrt{-1}$)

- A) $8 - 6i$
- B) $8 + 6i$
- C) $10 - 6i$
- D) $10 + 6i$

9

$$(5 - 2i)(4 - 3i)$$

Which of the following is equal to the expression above? (Note: $i = \sqrt{-1}$)

- A) $14 - 7i$
- B) $14 - 23i$
- C) $26 + 7i$
- D) $26 - 23i$

10

Which of the following is equal to $\frac{1}{i} + \frac{1}{i^2} + \frac{1}{i^4}$?

(Note: $i = \sqrt{-1}$)

- A) $-i$
- B) i
- C) 0
- D) 1

11

Which of the following is equal to $\frac{1 - 3i}{3 + i}$? (Note:

$i = \sqrt{-1}$)

- A) $-i$
- B) i
- C) $-\frac{5}{4}i$
- D) $\frac{3}{4} - \frac{5}{4}i$

12

Which of the following complex numbers is equivalent to $\frac{2 - i}{2 + i}$? (Note: $i = \sqrt{-1}$)

- A) $\frac{3}{5} - \frac{4}{5}i$
- B) $1 - \frac{4}{5}i$
- C) $\frac{5}{3} - \frac{4}{3}i$
- D) $1 - \frac{4}{3}i$