Complex numbers

1. (−8+4i)(1−i)

   Which of the following is equivalent to the complex number shown above?

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

   A. −12+4i

   B. −12+12i

   C. −4+12i

   D. −4+4i

   Correct answer: C Difficulty level: 2

2. $(4 + i)^2$

   Which of the following is equivalent to the complex number shown above?

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

   A. 15+8i

   B. 15−8i

   C. 17+8i

   D. 17−8i

   Correct answer: A Difficulty level: 2

3. (8−2i)(4−2i)

   Which of the following is equivalent to the complex number shown above?

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

   A. 28−24i

   B. 28+8i

   C. 36−24i

   D. 36+8i

   Correct answer: A Difficulty level: 2

4. (5+i)(7−3i)

   Which of the following is equivalent to the complex number shown above?

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

   A. 32+8i

   B. 32−8i

   C. 38+8i

   D. 38−8i

   Correct answer: D Difficulty level: 2

5. $i^4 + 4i^2 + 4$

   Which of the following is equivalent to the complex number shown above?

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

A. 1
B. −1
C. i + 4
D. i − 4

Correct answer: A Difficulty level: 2

6. (−3−i)(4−2i)
Which of the following is equivalent to the complex number shown above?
Note: $i = \sqrt{-1}$
A. −14−2i
B. −14+2i
C. −10−2i
D. −10+2i

Correct answer: B Difficulty level: 2

7. $(6 + 2i)^2$
Which of the following is equivalent to the complex number shown above?
Note: $i = \sqrt{-1}$
A. $40 + 4i^2$
B. $40 + 24i$
C. $32 + 24i$
D. $32 + 4i^2$

Correct answer: C Difficulty level: 2

8. (1+i)(1−i)
Which of the following is equivalent to the complex number shown above?
Note: $i = \sqrt{-1}$
A. 2-2i
B. 2i
C. 0
D. 2

Correct answer: D Difficulty level: 2

9. i(7−3i)
Which of the following is equivalent to the complex number shown above?
Note: $i = \sqrt{-1}$
A. 4i
B. 10i
C. 7i−3
D. 7i+3

Correct answer: D Difficulty level: 2

10. $\frac{i^2-16}{i+4}$

Which of the following is equivalent to the complex number shown above?

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

A. i−4

B. i+4

C. −i−4

D. −i+4

Correct answer: A Difficulty level: 2

11. (3+i)(2−4i)

Which of the following is equivalent to the complex number shown above?

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

A. 2−10i

B. 2−14i

C. 10−10i

D. 10−14i

Correct answer: C Difficulty level: 2

12. i^{101}

Which of the following is equivalent to the complex number shown above?

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

A. 1

B. -1

C. i

D. $-i$

Correct answer: C Difficulty level: 2

13. $(5-i)^2$

Which of the following is equivalent to the complex number shown above?

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

A. 24−10i

B. 24+10i

C. 26−10i

D. 26+10i

Correct answer: A Difficulty level: 2

14. $-8(7i-3i^2)$

Which of the following is equivalent to the complex number shown above?

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

A. $-80i$

B. $-56i-24$

C. $-56+24i$

D. $-32i$

Correct answer: B Difficulty level: 3

15. $\frac{3}{2+i}$

Which of the following is equivalent to the complex number shown above?

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

A. 2−i

B. 2+i

C. $\frac{6+3i}{5}$

D. $\frac{6+3i}{5}$

Correct answer: D Difficulty level: 3

16. $(3-i)^3$

Which of the following is equivalent to the complex number shown above?

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

A. 8−26i

B. 18−26i

C. 27−26i

D. 30−26i

Correct answer: B Difficulty level: 3

17. $(5-7i+i^2)+(8i^3+12)$

The complex expression above is equivalent to the expression a+bi for the integer constants a and b. What is the value of a?

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

A. 16

B. 17

C. 18

D. 19

Correct answer: A Difficulty level: 3

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