Unit 1: Complex Numbers

SSC-II Mathematics (Federal Board, National Book Foundation) | 35 MCQs

Choose the correct answer. The correct option is shown in **bold**. Each question carries one mark.

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1. The value of i^2 is

A. i
B. −1
C. 1
D. −i

2. $\sqrt{(-9)}$ is equal to

A. −3i
B. 9i
C. 3i
D. −9

3. The value of i^7 is

A. −1
B. 1
C. i
D. −i

4. The value of i^{10} is

A. −1
B. −i
C. 1
D. i

5. The value of 1/i is

A. −1
B. i
C. −i
D. 1

6. (2 + 3i) + (4 − 5i) equals

A. 6 + 2i
B. 6 − 2i
C. −2 + 8i
D. 6 + 8i

7. (3 + 2i)(3 − 2i) equals

A. 13
B. 9 − 4i
C. 5
D. 9 + 4i

8. $(1 + i)^2$ equals

A. −2i
B. 1 + 2i
C. 2
D. 2i

9. The conjugate of 5 − 7i is

A. 5 + 7i
B. −5 + 7i
C. −5 − 7i
D. 7 − 5i

10. The modulus |3 + 4i| is equal to

A. 25
B. 5
C. 1
D. 7

11. (2 + i)(1 − i) equals

A. 1 − i
B. 3 + i
C. 1 + i
D. 3 − i

12. The multiplicative inverse of $3 + 4i$ is

A. $(-3 - 4i)/5$ B. $(3 - 4i)/5$

C. $(3 - 4i)/25$ D. $(3 + 4i)/25$

13. The additive inverse of $-4 + 5i$ is

A. $-5 + 4i$ B. $4 + 5i$

C. $-4 - 5i$ **D. $4 - 5i$**

14. If $a + bi = 3 - 2i$, then the values of a and b are

A. $a = 3, b = -2$ B. $a = 2, b = -3$

C. $a = -2, b = 3$ D. $a = 3, b = 2$

15. The real part of $(1 + 2i)(3 - i)$ is

A. 7 B. 1

C. 5 D. 3

16. $(2 + 3i)/(1 + i)$ equals

A. $(-1 + 5i)/2$ **B. $(5 + i)/2$**

C. $(5 - i)/2$ D. $5 + i$

17. $\sqrt{(-5)} \times \sqrt{(-20)}$ equals

A. $10i$ B. $-10i$

C. 10 **D. -10**

18. The modulus of $-5 + 12i$ is

A. 169 **B. 13**

C. 17 D. 7

19. If $z = a + bi$, then $z + \bar{z}$ is equal to

A. 0 B. $2b$

C. $2a$ D. $2bi$

20. If $z = a + bi$, then $z \cdot \bar{z}$ is equal to

A. $a^2 + b^2$ B. $a^2 - b^2$

C. $2a$ D. $2abi$

21. Which of the following is a pure imaginary number?

A. 7 B. $7 + 0i$

C. $3 + 7i$ **D. $-7i$**

22. The solution set of $x^2 + 9 = 0$ is

A. {3i, −3i} B. {9i, −9i}

C. {3i} D. {3, −3}

23. $a^2 + b^2$ can be factorized over complex numbers as

A. $(a + b)(a - b)$ B. $(a + bi)^2$

C. $(a + bi)(a - bi)$ D. $(a + bi)(b - ai)$

24. The value of i^{21} is

A. $-i$ **B. i**

C. 1 D. -1

25. The point $(-3, 2)$ in the Argand plane represents the complex number

A. $-3 - 2i$ B. $3 - 2i$

C. $2 - 3i$ **D. $-3 + 2i$**

26. The complex number $-3 + 2i$ lies in the

A. third quadrant B. fourth quadrant

C. second quadrant D. first quadrant

27. The number 6 written as a complex number is

A. $6 + 0i$ B. $6 - i$

C. $6i$ D. $0 + 6i$

28. $(2 - 3i)^2$ equals

A. $4 - 9i$ **B. $-5 - 12i$**

C. $13 - 12i$ D. $-5 + 12i$

29. If $(x + 2) + (y - 1)i = 5 + 3i$, then the values of x and y are

A. $x = 3, y = 4$ B. $x = 3, y = 2$

C. $x = 4, y = 3$ D. $x = 7, y = 2$

30. $(5 + 2i) - (3 - 4i)$ equals

A. $2 - 2i$ B. $8 - 2i$

C. $2 + 6i$ D. $8 + 6i$

31. $\sqrt{(-16)}$ equals

A. $-4i$ B. 4

C. $16i$ **D. $4i$**

32. A complex number whose imaginary part is zero is a

A. unit vector **B. real number**

C. pure imaginary number D. complex conjugate

33. If $z = 3 - 4i$, then $|z|$ equals

A. 1 B. $\sqrt{7}$

C. 7 **D. 5**

34. The conjugate of the conjugate of z is

A. $-z$ B. $|z|$

C. z D. $\bar{z}$

35. For $z_1 = 1 + i$ and $z_2 = 1 - i$, the product z_1z_2 is

A. $2i$ **B. 2**

C. -2 D. 0