

CHAPTER-1 | Number System

QUIZ
PART-07

Q1. By simplifying $(\sqrt{3} + \sqrt{2}) \times (\sqrt{3} - \sqrt{2})$ we get:

- A. $5 + 4\sqrt{6}$
 B. $5 + 2\sqrt{6}$
 C. 5
 D. 1 (C)

Explanation: Using the difference of squares

formula: $(\sqrt{3} + \sqrt{2}) \times (\sqrt{3} - \sqrt{2}) = 3 - 2 = 1$.

2. By simplifying $((\sqrt{7} + \sqrt{6})^2) - 2\sqrt{42}$, we get:

- A. $5 + 4\sqrt{6}$
 B. 0
 C. 13
 D. 1 (B)

Explanation: Simplifying the expression using algebraic identities, we get 0.

3. What is the expanded form of $(a + b)^2$?

- A. $a^2 + b^2 - 2ab$
 B. $a^2 + b^2 + 2ab$
 C. $a^2 - b^2 + 2ab$
 D. $a^2 - b^2 - 2ab$ (B)

Explanation: The expanded form of $(a + b)^2$ is $a^2 + b^2 + 2ab$, which is a basic algebraic identity.

4. What is the simplified result of $(5 \times 7) + (2 \times 5)$?

- A. 35
 B. 45
 C. 50
 D. 55 (B)

Explanation: Simplifying the expression gives $(5 \times 7) + (2 \times 5) = 35 + 10 = 45$.

5. What is the formula for the expansion of $(a - b)^2$?

- A. $a^2 + b^2 + 2ab$
 B. $a^2 - b^2 + 2ab$
 C. $a^2 + b^2 - 2ab$
 D. $a^2 - b^2 - 2ab$ (D)

Explanation: The formula for $(a - b)^2$ is $a^2 - 2ab + b^2$, which simplifies to option D.

6. Which of the following is the correct expansion of $(a+b)(a-b)$?

- A. $a^2 - b^2$
 B. $a^2 + b^2$
 C. $a^2 - 2ab + b^2$
 D. $a^2 + 2ab + b^2$ (A)

Explanation: Using the identity for the difference of squares, $(a+b)(a-b) = a^2 - b^2$.

7. What is the value of $4^2 + 2^3$?

- A. 22
 B. 24
 C. 25
 D. 26 (A)

Explanation: $4^2 = 16$ and $2^3 = 8$, so the total is $16 + 8 = 22$.

8. Which of the following is a valid algebraic identity?

- A. $(a + b)^2 = a^2 - b^2$
 B. $(a - b)^2 = a^2 + b^2$
 C. $(a + b)^2 = a^2 + b^2 + 2ab$
 D. $(a - b)^2 = a^2 - b^2 + 2ab$ (C)

Explanation: $(a + b)^2 = a^2 + b^2 + 2ab$ is a valid algebraic identity.

9. If $a=3$ and $b = 4$, what is the value of $(a + b)^2$?

- A. 49
 B. 25
 C. 16
 D. 7 (B)

Explanation: $(a + b)^2(3 + 4)^2 = 7^2 = 49$, so the correct answer is 49.

10. By simplifying $(3\sqrt{2} + \sqrt{3})^2$, we get :

- A. $9 \times 2 + 3 \times 3 + 2 \times \sqrt{6}$
 B. $9 \times 2 + 2 \times \sqrt{6}$
 C. $18 + 2 \times \sqrt{6}$
 D. None of the above (A)

Explanation: Expanding $(3\sqrt{2} + \sqrt{3})^2$ gives $9 \times 2 + 3 \times 3 + 2 \times \sqrt{6}$

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