

## CHAPTER-2 | Polynomials

### QUIZ PART-16

1. What is the factorized form of  $4x^2 + 9y^2 + 16z^2 + 12xy - 24yz - 16xz$  ?
- A.  $(2x + 3y - 4z)(2x + 3y + 4z)$   
 B.  $(2x - 3y - 4z)(2x + 3y + 4z)$   
 C.  $(2x + 3y - 4z)(2x - 3y + 4z)$   
 D.  $(2x + 3y + 4z)(2x - 3y - 4z)$  (A)

**Explanation:** The given expression can be factorized as  $(2x + 3y - 4z)(2x + 3y + 4z)$  using the method of factoring quadratics involving three

2. What is the factorized form of  $2x^2 + y^2 + 8z^2 - 2xy + 4yz - 8xz$ ?
- A.  $(x + y + 2z)(2x - y + 4z)$   
 B.  $(2x + y + 4z)(x - y + z)$   
 C.  $(x - y + 2z)(2x + y + 4z)$   
 D.  $(2x + y - 4z)(x - y + z)$  (C)

**Explanation:** The given expression is factorized as  $(x - y + 2z)(2x + y + 4z)$  making use of the appropriate Identities

3. What is the expanded form of  $(2x + 1)^3$  ?
- A.  $8x^3 + 12x^2 + 6x + 1$   
 B.  $8x^3 + 6x^2 + 12x + 1$   
 C.  $6x^3 + 12x^2 + 6x + 1$   
 D.  $8x^3 + 6x^2 + 6x + 1$  (A)

**Explanation:** The expansion of  $(2x + 1)^3$  results in  $8x^3 + 12x^2 + 6x + 1$  using the binomial expansion formula

4. What is the expanded form of  $(2a - 3b)^3$
- A.  $8a^3 - 27b^3 - 12a^2b + 18ab^2$   
 B.  $8a^3 - 27b^3 + 12a^2b - 18ab^2$   
 C.  $8a^3 - 27b^3 + 12a^2b + 18ab^2$   
 D.  $8a^3 - 27b^3 - 12a^2b - 18ab^2$  (C)

**Explanation:** Expanding  $(2a - 3b)^3$  gives  $8a^3 - 27b^3 + 12a^2b + 18ab^2$

5. What is the expanded form of  $(x + 1)^3$  ?
- A.  $x^3 + 3x^2 + 3x + 1$   
 B.  $x^3 + 3x^2 + 3x - 1$   
 C.  $x^3 + 2x^2 + 3x + 1$   
 D.  $x^3 + 2x^2 + 3x - 1$  (A)

**Explanation:** Using the binomial expansion formula, the expanded form of  $(x + 1)^3$  is  $x^3 + 3x^2 + 3x + 1$

6. What is the value of  $(99)^3$  using an identity?
- A. 970299  
 B. 970399  
 C. 971299  
 D. 973299 (A)

**Explanation:** Using the identity  $(a - b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$ ,  $(99)$  can be rewritten as  $(100 - 1)$ , which evaluates to 970299

7. What is the expanded form of  $(998)^3$  ?
- A. 997000992  
 B. 1000000000  
 C. 994007992  
 D. 998001000 (C)

**Explanation:** Using the identity for the cube of a binomial,  $(998)^3$  is expanded as  $(1000 - 2)^3$ , resulting in 994007992

8. What is the factorized form of  $8x^3 + 27y^3$
- A.  $(2x + 3y)(4x^2 - 6xy + 9y^2)$   
 B.  $(2x - 3y)(4x^2 + 6xy + 9y^2)$   
 C.  $(x + y)(x^2 - xy + y^2)$   
 D.  $(2x + 3y)(4x^2 + 6xy + 9y^2)$  (D)

**Explanation:** The expression  $8x^3 + 27y^3$  can be factored as  $(2x + 3y)(4x^2 + 6xy + 9y^2)$  using the sum of cubes

9. What is the expanded form of  $(-2x + 3y + 2z)^2$  ?
- A.  $4x^2 + 9y^2 + 4z^2 + 12xy + 12xz + 12yz$   
 B.  $4x^2 + 9y^2 + 4z^2 - 12xy + 12xz + 12yz$   
 C.  $4x^2 + 9y^2 + 4z^2 + 12xy - 12xz + 12yz$   
 D.  $4x^2 + 9y^2 + 4z^2 - 12xy - 12xz + 12yz$  (A)

**Explanation:** Expanding  $(-2x + 3y + 2z)^2$  gives  $4x^2 + 9y^2 + 4z^2 + 12xy + 12xz + 12yz$

10. What is the factorized form of  $8x^3 - y^3$ ?
- A.  $(2x - y)(4x^2 + 2xy + y^2)$   
 B.  $(2x + y)(4x^2 - 2xy + y^2)$   
 C.  $(2x - y)(4x^2 - 2xy + y^2)$   
 D.  $(x - y)(x^2 + xy + y^2)$  (C)

**Explanation:** The difference of cubes identity states that  $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$  Using this,  $8x^3 - y^3$  factors to  $(2x - y)(4x^2 - 2xy + y^2)$