CHAPTER-2 | Polynomials

QUIZ PART-15

1. What is the expanded form of $(x + 4)(x + 10)$?
   A. $x^2 + 14x + 40$
   B. $x^2 + 14x + 44$
   C. $x^2 + 10x + 40$
   D. $x^2 + 10x + 44$ (A)

Explanation: By applying the distributive property, the expanded form is $x^2 + 4x + 10x + 40$ which simplifies to $x^2 + 14x + 40$.

2. What is the result of expanding $(x + 8)(x - 10)$?
   A. $x^2 - 2x – 80$
   B. $x^2 - 2x + 80$
   C. $X^2 - 2x – 72$
   D. $X^2 + 2x - 80$ (C)

Explanation: Expanding $(x + 8)(x - 10)$ gives x ^ 2 - 10x + 8x - 80 which simplifies to x ^ 2 - 2x – 80

3. What is the expanded form of $(3x + 4)(3x - 5)$?
   A. 9x ^ 2 - 15x + 12x - 20
   B. 9x ^ 2 + 15x + 12x – 20
   C. 9x ^ 2 - 20x + 12x – 20
   D. 9x ^ 2 + 20x - 12x - 20 (A)

Explanation: Expanding $(3x + 4)(3x - 5)$ results in 9x ^ 2 - 15x + 12x - 20 which simplifies to 9x ^ 2 - 3x - 20

4. What identity can be used to expand $(3 - 2x)(3 + 2x)$?
   A. a^2-b^2
   B. $(a + b)^2$
   C. $a - b)^2$
   D. $(a + b)(a - b)$ (D)

Explanation: This is a difference of squares identity, where $(3 - 2x)(3 + 2x) = 3^2 - (2x)^2$ which simplifies to $9-4x^2$

5. What is the product of 103 x 107 using identities?
   A. 11021
   B. 11821
   C. 11921
   D. 12021 (C)

Explanation : Using the identity $(a+b)(ab)\ a^2-b^2$, 103 x 107 can be written as (105-2)(105+2), which simplifies to $105^2 - 2^2 = 11025 - 4 = 11921$

6. What is the expanded form of $(x + 2y + 4z)^2$?
   A. $x^2 + 4y^2 + 16z^2 + 4xy + 8xz + 8yz$
   B. $x^2 + 4y^2 + 16z^2 + 4xy + 4xz + 8yz$
   C. $x^2 + 4y^2 + 16z^2 + 6xy + 6xz + 6yz$
   D. $x^2 + 4y^2 + 16z^2 + 4xy + 6xz + 8yz$ (A)

Explanation: Expanding $(x + 2y + 4z)^2$ using the distributive property results in $x^2 + 4y^2 + 16z^2 + 4xy + 8xz +$

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

Explanation: Expanding $(2x - y + z)^2$ results in $4x^2 + y^2 + z^2 - 4xy + 4xz - 2yz$

8. Which identity represents the difference of cubes?
   A. $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$
   B. $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$
   C. $a^3 – b^3 = (a + b)(a^2 - ab + b^2)$
   D. $a^3 + b^3 = (a + b)(a^2 + ab + b^2)$ (A)

Explanation: The difference of cubes identity states that $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$

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

Explanation: The expression $9x^2 + 6xy + y^2$ can be factorized as $(3x + y)(3x + y)$ which is a perfect square trinomial

10. What is the factorized form of $4y^2 - 4y + 1$?
   A. $(2y - 1)^2$
   B. $(2y + 1)^2$
   C. $(y - 1)(y + 1)$
   D. $(y - 2)(y + 2)$ (A)

Explanation: The quadratic expression $4y^2 - 4y + 1$ is a perfect square trinomial and can be factored as $(2y- 1)^2$