

Lesson 9-1: Adding and Subtracting Polynomials

Part 2: Adding and Subtracting Polynomials

1. 080710a, P.I. A.A.13

The sum of $8x^2 - x + 4$ and $x - 5$ is

- [A] $8x^2 - 2x + 9$ [B] $8x^2 + 9$
[C] $8x^2 - 1$ [D] $8x^2 - 2x - 1$

2. 069904a, P.I. A.A.13

The sum of $3x^2 + x + 8$ and $x^2 - 9$ can be expressed as

- [A] $4x^2 + x - 1$ [B] $3x^4 + x - 1$
[C] $4x^4 + x - 1$ [D] $4x^2 + x - 17$

3. 010108a, P.I. A.A.13

The sum of $3x^2 + 4x - 2$ and $x^2 - 5x + 3$ is

- [A] $4x^2 + x + 1$ [B] $4x^2 - x + 1$
[C] $4x^2 + x - 1$ [D] $4x^2 - x - 1$

4. 080423a, P.I. A.A.13

The expression $(3x^2 + 2xy + 7) - (6x^2 - 4xy + 3)$ is equivalent to

- [A] $3x^2 - 6xy - 4$ [B] $-3x^2 + 6xy + 4$
[C] $-3x^2 - 2xy + 4$ [D] $3x^2 - 2xy + 4$

5. 010707a, P.I. A.A.13

The expression $(2x^2 + 6x + 5) - (6x^2 + 3x + 5)$ is equivalent to

- [A] $4x^2 + 3x - 10$ [B] $-4x^2 - 3x + 10$
[C] $4x^2 - 3x$ [D] $-4x^2 + 3x$

6. 060511a, P.I. A.A.13

The expression $(x^2 - 5x - 2) - (-6x^2 - 7x - 3)$ is equivalent to

- [A] $7x^2 - 2x + 1$ [B] $7x^2 - 12x - 5$
[C] $7x^2 + 2x + 1$ [D] $7x^2 + 2x - 5$

7. 010019a, P.I. A.A.13

When $3a^2 - 2a + 5$ is subtracted from $a^2 + a - 1$, the result is

- [A] $-2a^2 + 3a - 6$ [B] $2a^2 - 3a + 6$
[C] $2a^2 - 3a - 6$ [D] $-2a^2 + 3a + 6$

8. 060019a, P.I. A.A.13

If $2x^2 - 4x + 6$ is subtracted from $5x^2 + 8x - 2$, the difference is

- [A] $3x^2 + 4x + 4$ [B] $-3x^2 + 4x + 4$
[C] $-3x^2 - 12x + 8$ [D] $3x^2 + 12x - 8$

9. 080020a, P.I. A.A.13

When $3x^2 - 2x + 1$ is subtracted from $2x^2 + 7x + 5$, the result will be

- [A] $-x^2 + 5x + 6$ [B] $-x^2 + 9x + 4$
[C] $x^2 + 5x + 6$ [D] $x^2 - 9x - 4$

10. 080209a, P.I. A.A.13

When $-2x^2 + 4x + 2$ is subtracted from $x^2 + 6x - 4$, the result is

- [A] $3x^2 + 2x - 6$ [B] $2x^2 - 2x - 6$
[C] $-x^2 + 10x - 2$ [D] $-3x^2 - 2x + 6$

11. 010429a, P.I. A.A.13

If $2x^2 - x + 6$ is subtracted from $x^2 + 3x - 2$, the result is

- [A] $x^2 - 4x + 8$ [B] $-x^2 + 4x - 8$
[C] $-x^2 + 2x - 8$ [D] $x^2 + 2x - 8$

12. 010523a, P.I. A.A.13

When $3x^2 - 8x$ is subtracted from $2x^2 + 3x$, the difference is

- [A] $x^2 - 5x$ [B] $-x^2 - 11x$
[C] $-x^2 - 5x$ [D] $-x^2 + 11x$

13. 010619a, P.I. A.A.13

When $3a^2 - 7a + 6$ is subtracted from $4a^2 - 3a + 4$, the result is

- [A] $a^2 + 4a - 2$ [B] $-a^2 - 4a + 2$
[C] $a^2 - 10a - 2$ [D] $7a^2 - 10a + 10$

14. 080123a, P.I. A.A.13

Subtract $5x^2 - 7x - 6$ from $9x^2 + 3x - 4$.

Lesson 9-2: Multiplying and Factoring

Part 1: Distributing a Monomial

15. 010819a, P.I. A.A.13

What is the product of $2r^2 - 5$ and $3r$?

- [A] $6r^3 - 15r$ [B] $6r^3 - 5$
[C] $6r^2 - 15$ [D] $6r^2 - 15r$

Part 2: Factoring a Monomial from a Polynomial

16. 060421a, P.I. A.A.20

If $3x$ is one factor of $3x^2 - 9x$, what is the other factor?

- [A] $x - 3$ [B] $3x$
[C] $x + 3$ [D] $x^2 - 6x$

17. 060318a, P.I. A.A.20

If one factor of $56x^4y^3 - 42x^2y^6$ is $14x^2y^3$, what is the other factor?

- [A] $4x^2y - 3xy^2$ [B] $4x^2 - 3y^2$
[C] $4x^2 - 3y^3$ [D] $4x^2y - 3xy^3$

Lesson 9-3: Multiplying Binomials

Part 1: Multiplying Two Binomials

18. 060708a, P.I. A.A.13

What is the product of $(c + 8)$ and $(c - 5)$?

- [A] $c^2 + 13c - 40$ [B] $c^2 - 3c - 40$
[C] $c^2 + 3c - 40$ [D] $c^2 - 40$

Lesson 9-4: Multiplying Special Cases

Part 1: Finding the Square of a Binomial

19. 060015a, P.I. A.A.13

The expression $(x - 6)^2$ is equivalent to

- [A] $x^2 - 36$ [B] $x^2 + 12x + 36$
[C] $x^2 + 36$ [D] $x^2 - 12x + 36$

20. 010430a, P.I. A.A.13

The expression $(a^2 + b^2)^2$ is equivalent to

- [A] $a^4 + 2a^2b^2 + b^4$ [B] $a^4 + 4a^2b^2 + b^4$
[C] $a^4 + b^4$ [D] $a^4 + a^2b^2 + b^4$

Lesson 9-5: Factoring Trinomials of the Type ax^2+bx+c

Part 1: Factoring Trinomials

21. 010004a, P.I. A.A.20

Which expression is a factor of $x^2 + 2x - 15$

- [A] $(x - 5)$ [B] $(x - 3)$
[C] $(x + 15)$ [D] $(x + 3)$

22. 060206a, P.I. A.A.20

Which expression is a factor of $n^2 + 3n - 54$?

- [A] $n - 9$ [B] $n + 6$
[C] $n^2 + 9$ [D] $n + 9$

23. 010318a, P.I. A.A.20

What are the factors of $x^2 - 10x - 24$?

- [A] $(x - 12)(x + 2)$ [B] $(x - 4)(x - 6)$
[C] $(x - 4)(x + 6)$ [D] $(x + 12)(x - 2)$

24. 010814a, P.I. A.A.20

What are the factors of $x^2 - 5x + 6$?

- [A] $(x - 2)$ and $(x - 3)$
[B] $(x + 2)$ and $(x + 3)$
[C] $(x + 6)$ and $(x - 1)$
[D] $(x - 6)$ and $(x + 1)$

Lesson 9-6: Factoring Trinomials of the Type ax^2+bx+c

Part 1: Factoring ax^2+bx+c

25. 060623a, P.I. A.A.20

Factored completely, the expression $2y^2 + 12y - 54$ is equivalent to

- [A] $2(y - 3)(y - 9)$ [B] $(y + 6)(2y - 9)$
[C] $2(y + 9)(y - 3)$ [D] $(2y + 6)(y - 9)$

26. 060535a, P.I. A.A.20

Factor completely: $3x^2 + 15x - 42$

Lesson 9-7: Factoring Special Cases

Part 2: Factoring the Difference of Squares

27. fall0706ia, P.I. A.A.19

The expression $x^2 - 16$ is equivalent to

- [A] $(x + 8)(x - 8)$ [B] $(x - 2)(x + 8)$
[C] $(x + 4)(x - 4)$ [D] $(x + 2)(x - 8)$

28. 010414a, P.I. A.A.19
What is a common factor of $x^2 - 9$ and $x^2 - 5x + 6$?
- [A] $x - 3$ [B] $x + 3$
[C] x^2 [D] $x - 2$
29. 010105a, P.I. A.A.19
One of the factors of $4x^2 - 9$ is
- [A] $(4x - 3)$ [B] $(x + 3)$
[C] $(2x + 3)$ [D] $(x - 3)$
30. 080711a, P.I. A.A.19
One factor of the expression $x^2y^2 - 16$ is
- [A] $xy - 8$ [B] $x^2 + 8$
[C] $xy - 4$ [D] $x^2 - 4$
31. 010201a, P.I. A.A.19
Expressed in factored form, the binomial $4a^2 - 9b^2$ is equivalent to
- [A] $(2a - 3b)(2a - 3b)$
[B] $(4a - 3b)(a + 3b)$ [C] $(2a - 9b)(2a + b)$
[D] $(2a + 3b)(2a - 3b)$
32. 060109a, P.I. A2.A.7
Factor completely: $3x^2 - 27$
- [A] $3(x - 3)^2$ [B] $3(x + 3)(x - 3)$
[C] $3(x^2 - 27)$ [D] $(3x + 3)(x - 9)$
33. 080103a, P.I. A2.A.7
Written in simplest factored form, the binomial $2x^2 - 50$ can be expressed as
- [A] $2(x - 5)(x - 5)$ [B] $(x - 5)(x + 5)$
[C] $2x(x - 50)$ [D] $2(x - 5)(x + 5)$
34. 080533a, P.I. A2.A.7
Factor completely: $5n^2 - 80$
35. 080434a, P.I. A2.A.7
Factor completely: $3ax^2 - 27a$

[1] C[2] A[3] B[4] B[5] D[6] C[7] A[8] D[9] B[10] A[11] B[12] D[13] A

[2] $4x^2 + 10x + 2$, and appropriate work is shown, such as $(9x^2 + 3x - 4) - (5x^2 - 7x - 6)$.

[1] The setup is correct, but the distribution of the negative sign is incorrect.

or [1] $14x^2 - 4x - 10$, but appropriate work is shown.

or [1] $4x^2 + 10x + 2$, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[14] incorrect procedure.

[15] A[16] A[17] C[18] C[19] D[20] A[21] B[22] D[23] A[24] A[25] C

[2] $3(x + 7)(x - 2)$, and appropriate work is shown.

[1] Appropriate work is shown, but one computational error is made.

or [1] A conceptual error is made, such as incomplete factoring.

or [1] $3(x + 7)(x - 2)$, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[26] incorrect procedure.

[27] C[28] A[29] C[30] C[31] D[32] B[33] D

[2] $5(n + 4)(n - 4)$, and appropriate work is shown.

[1] Appropriate work is shown, but one factoring error is made or the expression is not simplified completely.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[34] incorrect procedure.

[2] $3a(x - 3)(x + 3)$, and appropriate work is shown.

[1] Appropriate work is shown, but one factoring error is made, or the expression is not factored completely.

or [1] $3a(x - 3)(x + 3)$, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[35] incorrect procedure.