Algebra 102 Identifying and Simplifying Polynomials

Part 1: Identify the Terms in Each Polynomial

List all terms in the polynomial.

1. $3x^2 + 5x - 7$

Answer: _____

2. $-2x^3 + 4x^2 - x + 9$

Answer: _____

3. $6a^2 - 3a$

Answer: _____

4. $8x - 1$

Answer: _____

5. $-x^2 + 2x - 5$

Answer: _____

6. $12y^3 + 7y - 4$

Answer: _____

7. $5 - 9x$

Answer: _____

8. $10m^2 - 3m + 6$

Answer: _____

9. $x^3 - 2x^2 + x - 1$

Answer: _____

10. $4a - a^2$

Answer: _____

Part 2: Add the Polynomials

Simplify each expression.

11. $(3x^2 + 2x) + (5x^2 - 4x)$

Answer: _____

12. $(2a + 3) + (4a - 7)$

Answer: _____

13. $(-x^2 + 6x) + (3x^2 - 2x)$

Answer: _____

14. $(5y - 3) + (2y + 4)$

Answer: _____

15. $(4m^2 - m) + (3m^2 + 2m)$

Answer: _____

16. $(6x^2 - 7x + 2) + (-2x^2 + 3x - 5)$

Answer: _____

17. $(9 + 3x) + (x - 4)$

Answer: _____

18. $(7p - 5) + (2p + 6)$

Answer: _____

19. $(8x^3 + x) + (-3x^3 + 4x)$

Answer: _____

20. $(x^2 + x + 1) + (2x^2 - x + 5)$

Answer: _____

Part 3: Word Problems — Simplify the Polynomials

Write and simplify a polynomial for each situation.

21. A farmer grows $3x^2 + 4x$ corn stalks in one field and $2x^2 + x$ in another. How many corn stalks total?
Answer: _____

22. Two students collect recyclable cans. One collects $4x + 3$, the other collects $5x - 2$. How many do they collect together?
Answer: _____

23. A rectangle has length $2x + 5$ and width $x + 1$. Write an expression for the perimeter.
Answer: _____

24. A business earned $6x^2 - x$ dollars in January and $3x^2 + 4x$ dollars in February. How much total income?
Answer: _____

25. A triangle has side lengths $x + 2$, $2x - 1$, and x. What is the perimeter?
Answer: _____

26. One week a runner runs $2x + 3$ miles, the next $3x - 2$. How many miles total?
Answer: _____

27. A class writes $x^2 + 2x$ words in essays on Monday and $2x^2 - x$ on Tuesday. Total words?
Answer: _____

28. A painter uses $5x - 1$ gallons of paint on one job and $x + 3$ on another. How much total?
Answer: _____

29. Two teams plant trees. One plants $4x^2 + x - 2$, and the other $x^2 - 3x + 5$. Total trees?
Answer: _____

30. A pool's length is $3x + 2$ and width $x + 4$. Write an expression for the perimeter.
Answer: _____

Answer Key

Part 1:

1. $3x^2$, $5x$, -7

2. $-2x^3$, $4x^2$, -x, 9

3. $6a^2$, -3a

4. 8x, -1

5. $-x^2$, 2x, -5

6. $12y^3$, 7y, -4

7. 5, -9x

8. $10m^2$, -3m, 6

9. x^3, $-2x^2$, x, -1

10. 4a, $-a^2$

Part 2:

11. $8x^2$ - 2x

12. 6a - 4

13. $2x^2$ + 4x

14. 7y + 1

15. $7m^2$ + m

16. $4x^2$ - 4x - 3

17. 4x + 5

18. 9p + 1

19. $5x^3$ + 5x

20. $3x^2$ + 6

Part 3:

21. $5x^2$ + 5x

22. 9x + 1

23. 6x + 12

24. $9x^2$ + 3x

25. 4x + 1

26. 5x + 1

27. $3x^2$ + x

28. 6x + 2

29. $5x^2$ - 2x + 3

30. 8x + 12

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