

Algebra

Operations with polynomials Review Homework

Name: _____

Find the degree of each polynomial. Then, identify it as a monomial, binomial, trinomial, or a polynomial.

1. $2x^3 + 9$ degree: 3 → cubic
binomial

2. $7x^2 + 3x - 1$ degree: 2 → quadratic
trinomial

3. $-4x^4 - 9x^3 - 8$ degree: 4
trinomial

4. $x^3 + 2x^2 - 6x + 9$ degree: 3 → cubic
polynomial

5. $-9x^3y^2$ degree: 5
monomial

6. $8x^2 - 2$ degree: 2 → quadratic
binomial

Find each sum or difference.

7. $(6n^2 - 4) + (-2n^2 + 9)$

$4n^2 + 5$

8. $(3 + a^2 + 2a) + (a^2 - 8a + 5)$

$2a^2 - 6a + 8$

9. $(x + 5) - (2y + 4x - 2)$

$-3x - 2y + 7$

10. $(4x + 5xy + 3y) - (3y + 6x + 8xy)$

$-2x - 3xy$

11. $(-3n^2 - 8 + 2n) + (5n + 13 + n^2)$

$-2n^2 + 7n + 5$

12. $(2b^3 - 4b + b^2) + (-9b^2 + 3b^3)$

$5b^3 - 8b^2 - 4b$

Find the product of the following polynomials

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

$3x^3 + 6x^2 - 18x$

14. $2ab^2(3a^2 + 2ab - 4b^2)$

$6a^3b^2 + 4a^2b^3 - 8ab^4$

15. $8xy(2x - 9y)$

$16x^2y - 72xy^2$

16. $(x+2)(x+1)$

$x^2 + 3x + 2$

17. $(3x+2)(x+4)$

$3x^2 + 14x + 8$

 $12x + 8x$

18. $(x-7)^2(x-7)$

$x^2 - 14x + 49$

19. $(x+8)(x+2)$

$x^2 + 10x + 16$

20. $(2x-5)(x+7)$

$2x^2 + 9x - 35$

 $14x - 35x$

Find the product of the following polynomials

21. $(11x - 6y)(2x + 3y)$ $33xy - 12xy$

$22x^2 + 21xy - 18y^2$

22. $(2x - 5)^2 (2x - 5)$

$4x^2 - 20x + 25$

23. $(x + 3)(x^2 + 7x + 6)$
 $x^3 + 7x^2 + 6x + 3x^2 + 21x + 18$

$x^3 + 10x^2 + 27x + 18$

24. $(4x + 9)(2x^2 - 5x + 3)$
 $8x^3 - 20x^2 + 12x + 18x^2 - 45x + 27$

$8x^3 - 2x^2 - 33x + 27$

25. $(x - 5)(4x^2 - 3x + 2)$
 $4x^3 - 3x^2 + 2x - 20x^2 + 15x - 10$

$4x^3 - 23x^2 + 17x - 10$

26. $(x + 4)(x^2 + 2x - 7)$
 $x^3 + 2x^2 - 7x + 4x^2 + 8x - 28$

$x^3 + 6x^2 + x - 28$

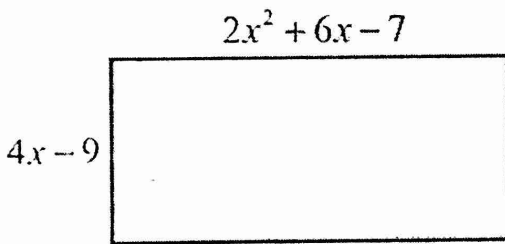
27. $(3x + 4)(7x^2 + 2x - 9)$
 $21x^3 + 6x^2 - 27x + 28x^2 + 8x - 36$

$21x^3 + 34x^2 - 19x - 36$

28. $(2x - 5)(3x^2 - 4x + 1)$
 $6x^3 - 8x^2 + 2x - 15x^2 + 20x - 5$

$6x^3 - 23x^2 + 22x - 5$

29. Write and simplify an expression to represent the perimeter and area of the rectangle.



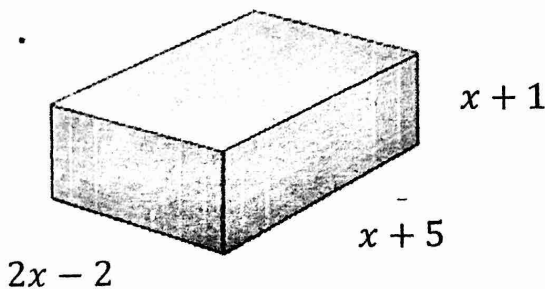
$P = 2(4x - 9) + 2(2x^2 + 6x - 7)$
 $8x - 18 + 4x^2 + 12x - 14$
 $4x^2 + 20x - 32$

$A = (4x - 9)(2x^2 + 6x - 7)$
 $8x^3 + 24x^2 - 28x - 18x^2 - 54x + 63$

Perimeter: $4x^2 + 20x - 32$ units

Area: $8x^3 + 6x^2 - 82x + 63$ units²

30. Write and simplify an expression to represent the volume of the prism.



$V = l \cdot w \cdot h$

$V = (2x - 2)(x + 5)(x + 1)$
 $V = (2x^2 + 10x - 2x - 10)(x + 1)$

$V = (2x^2 + 8x - 10)(x + 1)$

$V = 2x^3 + 2x^2 + 8x^2 + 8x - 10x - 10$

$V = 2x^3 + 10x^2 - 2x - 10$ units³