

8.1 Adding & Subtracting Polynomials

State the degree of each polynomial.

1. $4y - 5 + 6y^3$

3

2. $5ab^3c^4$

5

3. $5 - 4x^4 + 2xy$

4

Write the following in standard form and state the leading coefficient.

4. $7x - 5 - 10x^3$

$-10x^3 + 7x - 5$

LC: -10

5. $y - 5y - y^3$

$-y^3 - 4y$

LC: -1

6. $4n - 3n^3$

$-3n^3 + 4n$

LC: -3

Find the following sum or difference.

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

$$\begin{array}{r} 4x^2 - 3x + 2 \\ -4x^2 - 8x \\ \hline \end{array}$$

$-11x + 2$

8. $(5 + 6y - 5y^3) + (-6 + 5y)$

$$\begin{array}{r} -5y^3 + 6y + 5 \\ 5y - 6 \\ \hline \end{array}$$

$-5y^3 + 11y - 1$

8.2 Multiplying a Polynomial by a monomial

9. $-2x(x^2 + 4x - 6)$

$-2x^3 - 8x^2 + 12x$

10. $5(3 - 4x + 2) + 5x^2(-3 + 6x - 7)$

$$\begin{array}{r} 15 - 20x + 10 \\ -15x^2 + 30x^3 \\ -35x^2 \\ \hline \end{array}$$

$30x^3 - 50x^2 - 20x + 25$

11. Solve $-6(11 - 2v) = 7(-2 - 2v)$

$$\begin{array}{r} -66 + 12v = -14 - 14v \\ +14v \quad +14v \\ \hline \end{array}$$

$$\begin{array}{r} -66 + 26v = -14 \\ +66 \quad +66 \\ \hline \end{array}$$

$$\frac{26v}{26} = \frac{52}{26}$$

$v = 2$

12. $5(4y - 2y^3 + 2)$

$20y - 10y^3 + 10$

$-10y^3 + 20y + 10$

8.3 Multiplying Polynomials

13. $(2x - 2)(x + 4)$

$2x^2 + 8x - 2x - 8$

$2x^2 + 6x - 8$

14. $(x + 7)(x + 4)$

$x^2 + 11x + 28$

15. $(3x - 3)(2x - 5)$

$6x^2 - 15x - 6x + 15$

$6x^2 - 21x + 15$

16. $(2x - 3)(2x^2 - x + 3)$

$$\begin{array}{r} 4x^3 - 2x^2 + 6x \\ -6x^2 + 3x - 9 \\ \hline \end{array}$$

$4x^3 - 8x^2 + 9x - 9$

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

$$\begin{array}{r} 2x^4 - 2x^3 - x^2 \\ 8x^3 - 8x^2 - 4x \\ \hline \end{array}$$

$2x^4 + 6x^3 - 9x^2 - 4x$

8.4 Special Products

18. $(x+4)^2 (x+4)(x+4)$

$$x^2 + 8x + 16$$

19. $(2x-1)(2x+1)$

$$4x^2 - 1$$

20. $(3x-2y)^2$

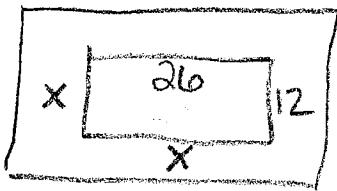
$$9x^2 - 12xy + 4y^2$$

21. $(x+2)(x+2)$

$$x^2 + 4x + 4$$

Word/Real World Problems

22. Callie is buying a large painting for her house. The height of the picture is 12" and the length is 26" the frame is x inches around the whole frame. What area will the painting take on the wall.



$$(2x+12)(2x+26)$$

$$4x^2 + 52x + 24x + 312$$

$$4x^2 + 76x + 312 \text{ inches}^2$$

23. Find the area of a square with a length of $(5x+2)$ inches.

$$(5x+2)^2$$

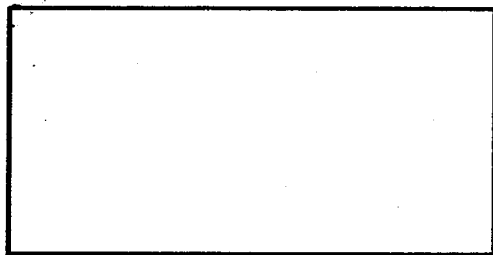
$$a^2 + 2ab + b^2$$

$$25x^2 + 20x + 4 \text{ inches}^2$$

24. Find the perimeter of the following shape.

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

$$x - 4$$



$$2(x-4) + 2(2x^2+4x-3)$$

$$2x-8 + 4x^2+8x-6$$

$$4x^2 + 10x - 14 \text{ units}$$