LESSON 10.1

NAME _____ DATE _____

Practice A

For use with pages 576–582

Write the polynomial in standard form.

1. $3x + 4x^2 - 5$
2. $5x^2 + 4 - 3x$
3. $x - 7x^3 + 2$
4. $8 + 2x + 4x^2$
5. $5x^2 + 4x^3 - 2x$
6. $-4x + 7x^4 - 5x^3 + 1$
7. $3x - 7 + 2x^2$
8. $7x - 2$
9. $-x + 2x^2 + x^3 - 2$

Identify the leading coefficient, and classify the polynomial by degree and by number of terms.

10. 14
11. $2x + 3$
12. $-3x^2 + 6x - 2$
13. $x^3 - 5$
14. $1 - x^4$
15. $x^2 + 4x - x^4 + 3x^3 - 8$
16. $2x^2 - 5x + 1$
17. $2 + x^2$
18. $x - x^3 + 3x^2 + 9$

Use a vertical format to add or subtract.

19. $(x^2 + 2x + 7) + (4x^2 + x - 3)$
20. $(5x^2 - 2x + 4) + (-2x^2 + 3x - 1)$
21. $(5n^2 + 2n + 3) - (n + 2)$
22. $(6n^2 + 4n + 6) - (5n^2 + n + 2)$
23. $(2a^3 - 4a^2 + 7) + (-2a^2 + a - 3)$
24. $(4n^2 - 6n + 5) - (8n^2 + n + 3)$

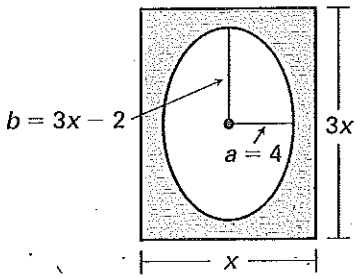
Use a horizontal format to add or subtract.

25. $(x^2 + 2x + 1) + (x - 3)$
26. $(3m^2 + 2m + 1) - (-2m^2 + 4m)$
27. $(7x + 1) - (-x^2 + 3x - 5)$
28. $(5x^2 - 9) + (-3x^2 + 5x + 9)$
29. $(7x^3 - 8x^2 + 4) + (9x^2 + 5x + 2)$
30. $(n^2 - 2n) - (-5n^2 + 3n - 1)$

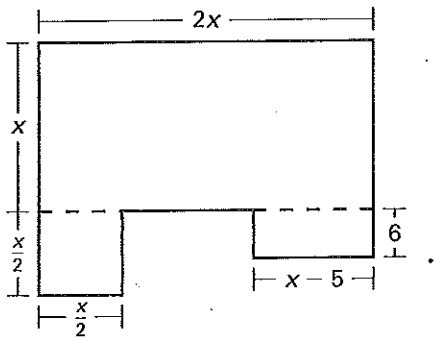
Use a vertical format or a horizontal format to add or subtract.

31. $(2x^3 + 5x) + (7x^2 - x + 2)$
32. $(-2x^2 - 7x + 3) - (-5x^2 + 3x - 7)$
33. $(3 + 7x) + (13x - 4)$
34. $(x^3 + x^2 + x + 1) + (-x^2 - x - 1)$
35. $(2x^2 + 3) - (6x + 4) + (3x^2 - x)$
36. $(x^2 - x + 3) - (-3x^2 + 5x - 2)$

37. ***Photograph Mat*** A mat in a frame has an opening for a photograph (see figure). Find an expression for the area of the mat. (Area of opening: $A = \pi ab$).



38. ***Floor Plan*** The first floor of a home has the floor plan shown below. Find an expression in standard form for the area of the first floor.



LESSON 10.1

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Practice B

For use with pages 576–582

Identify the leading coefficient, and classify the polynomial by degree and by number of terms.

1. 12
2. $5x - 2$
3. $-4x^2 + 7x - 1$
4. $5x^3 - 2$
5. $4 - 3x^4$
6. $x^2 + 5x + 2x^4 + x^3 - 2$
7. $6 - 3x^3$
8. $5x^2 + 3x - 4$
9. $7x - x^5 + 3x^2 + 1$

Use a vertical format to add or subtract.

10. $(3x^2 - 4x + 1) + (-x^2 + x - 9)$
11. $(-8x^2 - 3x + 7) + (-x^3 + 6x^2 - 5)$
12. $(-4x^3 - 8x^2 + 5x + 9) - (6x^2 + 2x - 4)$
13. $(6x - 5) + (4x^3 - 3x + 4)$
14. $(-3 + 4n^2) - (5 - 2n^3)$
15. $(x - 4x^2 + 7) - (-5x^2 + 5x - 3)$

Use a horizontal format to add or subtract.

16. $(x^2 + 1) + (-4x^2 + 5)$
17. $(3x^2 + 4) - (x^2 - 5x + 2)$
18. $(3t^2 - 8t + 2) - (-3t^2 + 5t - 7)$
19. $(9x^3 - 5x^2 + x) + (6x^2 + 5x - 10)$
20. $(5x^2 + x^3 + 6) + (x^2 + 5 - 6x)$
21. $12 - (-5x^2 + x - 7)$

Use a vertical format or a horizontal format to add or subtract.

22. $(5x^3 - 3x) - (7x^2 - 3x + 1)$
23. $(2x^3 + 4) - (-x^2 + 3x)$
24. $(m + 3m^3 - 4m^5) + (2m^3 + 5m^5 - 4)$
25. $(x^2 + 1) + (-3x^2 - 7) - (x^2 + 5)$
26. $(5x^2 + 4) - (3x + 7) + (2x^2 - 1)$
27. $2(x^2 - 4x + 5) - (x^2 + 6x - 1)$

28. ***Profit*** For 1990 through 2000, the revenue R and cost C of producing a product can be modeled by

$$R = \tfrac{1}{3}t^2 + \tfrac{20}{3}t + 300$$

$$C = \tfrac{1}{15}t^2 + \tfrac{13}{3}t + 200$$

where t is the number of years since 1990. Find a model for the profit P earned from 1990 to 2000. (*Hint:* Profit = Revenue − Cost)

29. ***Library Books*** For 1990 through 2000, the number of fiction books F (in 10,000s) and nonfiction books N (in 10,000s) borrowed from a library can be modeled by

$$F = 0.01t^2 + 0.09t + 6$$

$$N = 0.004t^2 + 0.06t + 4$$

where t is the number of years since 1990. Find a model for the total number of books borrowed B from the library in a year from 1990 to 2000.

LESSON 10.1

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Practice C

For use with pages 576–582

Identify the leading coefficient, and classify the polynomial by degree and by number of terms.

1. -4
2. $3x - 1$
3. $-x^2 + 6x - 2$
4. $7x^3 - 5x$
5. $6 - 2x^3$
6. $x^3 - 5x + 2x^5 - x^4 - 7$
7. $6 + 3x^4$
8. $-x^2 + 6x - 2$
9. $3x - x^4 + 3x^3 - 5x^2$

Use a vertical format to add or subtract.

10. $(2a^2 - 4a + 3) + (6a^2 + 4a - 3)$
11. $(-4x^3 - 7x + 5) + (-x^2 + 6x - 1)$
12. $(-2x^3 + 3x^2 + x + 2) - (x^2 - x + 4)$
13. $(9x - 2) + (2x^4 - 5x + 1)$
14. $(7m^2 - 3m + 8) - (-3m^2 - 6m + 1)$
15. $(-3 + 2n^2 + 5n^5) - (4 - n^3 + 2n^2 + n^5)$

Use a horizontal format to add or subtract.

16. $(5x^2 + 2x - 1) + 8x^2$
17. $(5n^2 + 9) - (n^2 - 8n - 5)$
18. $(n^2 - 6n) + (-2n^2 + 5n + 2)$
19. $(5t^3 - 2t^2 + t) - (-4t^3 + t^2 + 3)$
20. $(7x^2 + x^3 + 9) + (4x^2 + 2 - 5x)$
21. $(6x - 3x^2 + 1) - (9x - 4 - 3x^2)$

Use a vertical format or a horizontal format to add or subtract.

22. $(3n^3 - 5n) - (2n^2 - 4n + 7)$
23. $(x^3 + 4x) - (2x - x^2)$
24. $(3m + m^3 - 2m^5) + (7m^3 + m^5 - 1)$
25. $(x^2 + 1) + (x^2 - 1) - (x^2 + 1)$
26. $(6x - 5) - (8x + 15) + (3x - 4)$
27. $(2x^2 + 1) + (x^2 - 2x + 1) - (2x^2 + 8)$
28. $-(x^3 - 2) + (4x^3 - 2x) - (2x^2 + 3)$
29. $-(5n^2 - 1) - (-3n^2 + 5) - (n^2 - n)$
30. $2(t^2 + 5) - 3(t^2 + 5) + 5(t^2 + 5)$
31. $-10(u + 1) + 8(u - 1) - 3(u + 6)$

32. *Retail Sales* For 1990 through 2000, the total sales (in billions) for retail stores R and for durable-goods stores D can be modeled by

$$R = -0.21t^2 + 31.6t + 357.4$$

$$D = 0.26t^2 + 2.9t + 343$$

where t is the number of years since 1990. Find a model for the sales of non-durable goods stores N. (*Hint:* Retail sales = durable goods sales + non-durable goods sales)

33. *Profit* For 1990 through 2000, the revenue R and cost C of producing a product can be modeled by

$$R = \tfrac{3}{4}t^2 + \tfrac{5}{3}t + 108$$

$$C = \tfrac{7}{12}t^2 + \tfrac{5}{6}t + 94$$

where t is the number of years since 1990. Find a model for the profit P earned from 1990 to 2000. (*Hint:* Profit = Revenue − Cost)