2.25.20

At The Bell: **PSSA:** Simplify. $(x+3)^2$

8-4 Practice

Multiplying Special Cases

Simplify each expression.

1. $(x+7)^2$ $x^2+14x+49$

2. $(w+9)^2$ $w^2+18w+81$

3. $(h+3)^2$ h^2+6h+9

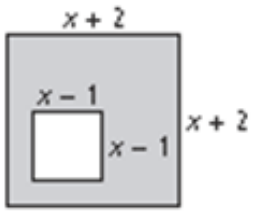
7. $(a-5)^2$ $a^2-10a+25$

8. $(k-10)^2$ $k^2-20k+100$

9. $(n-4)^2$ $n^2-8n+16$

The figures below are squares. Find an expression for the area of each shaded region. Write your answers in standard form.

13.



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

$x^2+4x+4-(x^2-2x+1)$

$6x+3 \text{ units}^2$

Simplify each product.

28. $(v+7)(v-7)$ v^2-49

29. $(b+2)(b-2)$ b^2-4

30. $(z-9)(z+9)$ z^2-81

34. $(m+1)(m-1)$ m^2-1

35. $(a+4)(a-4)$ a^2-16

36. $(5+g)(5-g)$ $25-g^2$

Simplify each product.

46. $(m+4n)^2$ $m^2+8mn+16n^2$

47. $(3a+b)^2$ $9a^2+6ab+b^2$

48. $(6s-t)^2$ $36s^2-12st+t^2$

52. $(r^2+5s)(r^2-5s)$ r^4-25s^2

53. $(6p^2+2q)(6p^2-2q)$ $36p^4-4q^2$

54. $(3w^4-z^3)(3w^4+z^3)$ $9w^8-z^6$

8 Mid-Chapter Quiz

MathXL® for School
Go to PowerAlgebra.com

Do you know HOW?

Find the degree of each monomial.

1. $-5a^8$
2. $4x^2y^3$

Write each polynomial in standard form. Then name each polynomial based on its degree and number of terms.

3. $4x + 3x^2$
4. $7p^2 - 3p + 2p^3$

Simplify each sum or difference.

5. $(x^2 + 6x + 11) + (3x^2 + 7x + 4)$
6. $(5w^3 + 3w^2 + 8w + 2) + (7w^2 + 3w + 1)$
7. $(4q^2 + 10q + 7) - (2q^2 + 7q + 5)$
8. $(9t^4 + 5t + 8) - (3t^2 - 6t - 4)$

Simplify each product.

9. $6x^2(4x^2 + 3)$
10. $-8c^3(3c^2 + 2c - 9)$

Factor each polynomial.

11. $16b^4 + 8b^2 + 20b$
12. $77x^3 + 22x^2 - 33x - 88$

Simplify each product.

13. $(x + 2)(x + 9)$
14. $(4b - 1)(b - 8)$
15. $(h + 2)(3h^2 + h - 7)$
16. $(z - 1)(z^2 - 4z + 9)$

17. **Design** You are designing a rectangular rubber stamp. The length of the stamp is $2r + 3$. The width of the stamp is $r - 4$. What polynomial in standard form represents the area of the stamp?

Simplify each product.

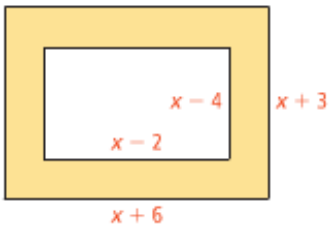
18. $(r + 3)^2$
19. $(k - 3)(k + 3)$
20. $(3d + 10)^2$
21. $(g + 10)(g - 10)$
22. $(2m - 7)^2$
23. $(7h - 2)(7h + 2)$

24. **Woodworking** A birdhouse has a square base with side length $3x - 4$. What polynomial in standard form represents the area of the base?

Do you UNDERSTAND?

25. **Writing** Can the degree of a monomial ever be negative? Explain.

26. **Geometry** The figures below are rectangles. What polynomial in standard form represents the area of the shaded region?



27. **Open-Ended** Write a trinomial that has $9x^2$ as the GCF of its terms.

28. **Open-Ended** Write a trinomial of degree 4 such that the GCF of its terms is 1.

29. **Reasoning** Suppose n represents an even number. Write a simplified expression that represents the product of the next two even numbers.

30. **Writing** Describe how to simplify $(8k^2 + k - 1) - (k^3 - 4k^2 - 7k + 15)$. Write your answer as a polynomial in standard form.

Assignment:

Study for
Quiz 8-1 - 8-4

Answers

Mid-Chapter Quiz

1. 8 **2.** 5

3. $3x^2 + 4x$; quadratic binomial

4. $2p^3 + 7p^2 - 3p$; cubic trinomial

5. $4x^2 + 13x + 15$

6. $5w^3 + 10w^2 + 11w + 3$

7. $2q^2 + 3q + 2$

8. $9t^4 - 3t^2 + 11t + 12$

9. $24x^4 + 18x^2$

10. $-24c^5 - 16c^4 + 72c^3$

11. $4b(4b^3 + 2b + 5)$

12. $11(7x^3 + 2x^2 - 3x - 8)$

13. $x^2 + 11x + 18$

14. $4b^2 - 33b + 8$

15. $3h^3 + 7h^2 - 5h - 14$

16. $z^3 - 5z^2 + 13z - 9$

17. $2r^2 - 5r - 12$

18. $r^2 + 6r + 9$

19. $k^2 - 9$ **20.** $9d^2 + 60d + 100$

21. $g^2 - 100$ **22.** $4m^2 - 28m + 49$

23. $49h^2 - 4$ **24.** $9x^2 - 24x + 16$

25. No; by definition, a monomial must have a whole-number exponent.

26. $15x + 10$

27. Answers will vary. Sample: $81x^4 + 27x^3 - 9x^2$

28. Answers will vary. Sample: $x^4 + x^2y + 3$

29. $n^2 + 6n + 8$

30. Answers may vary. Sample: Rewrite the expression as a sum, then combine like terms:

$8k^2 + k - 1 - k^3 + 4k^2 + 7k - 15 =$
$-k^3 + 12k^2 + 8k - 16$