

LESSON
8-4

Practice A

Factoring $ax^2 + bx + c$

Factor each trinomial, where c is positive.

1. $5x^2 + 17x + 6$

2. $4x^2 + 16x + 15$

3. $3x^2 + 17x + 20$

$(x + 3)(5x + \quad)$

$(2x + \quad)(2x + \quad)$

4. $6x^2 + 19x + 10$

5. $8x^2 + 18x + 7$

6. $8x^2 + 14x + 3$

7. $4x^2 - 33x + 8$

8. $9x^2 - 27x + 14$

9. $6x^2 - 25x + 25$

$(4x - \quad)(x - \quad)$

$(3x - \quad)(3x - \quad)$

10. $5x^2 - 22x + 8$

11. $21x^2 - 22x + 5$

12. $12x^2 - 25x + 12$

Factor each trinomial, where c is negative.

13. $10x^2 + 13x - 9$

14. $3x^2 + x - 4$

15. $5x^2 + 7x - 6$

$(5x + \quad)(2x - 1)$

$(3x + \quad)(x - \quad)$

16. $4x^2 - 9x - 9$

17. $4x^2 - 12x - 7$

18. $6x^2 - 7x - 20$

22. The area of a rectangle is $8x^2 + 14x + 3$. The length is $2x + 3$. The width is _____.

8. $(x - 3)(x + 6)$ 9. $(x - 7)(x + 2)$
 10. $(x - 5)(x + 9)$

11. $(x + 8)(x - 3)$ 12. $(x + 6)(x + 5)$

Challenge

1. Distributive Property
 2. $\left(\frac{1}{2}\right)\left(\frac{1}{3}\right) = \frac{1 \times 1}{2 \times 3} = \frac{1}{6}$,
 $\frac{1}{2} + \frac{1}{3} = \frac{1}{2} \times \frac{3}{3} + \frac{1}{3} \times \frac{2}{2} = \frac{3+2}{2 \times 3} = \frac{5}{6}$
 3. $6\left(x + \frac{1}{2}\right)\left(x + \frac{1}{3}\right) = 2\left(x + \frac{1}{2}\right) \times 3\left(x + \frac{1}{3}\right)$
 $= (2x + 1)(3x + 1)$
 $= 6x^2 + 3x + 2x + 1$
 $= 6x^2 + 5x + 1$
 4. Yes; the given polynomial expression is written as a product of polynomials of lower degree. There is no requirement that the coefficients be integers.

5. $15\left(x + \frac{1}{5}\right)\left(x + \frac{1}{3}\right)$

6. $28\left(x + \frac{1}{7}\right)\left(x + \frac{1}{4}\right)$

7. $6\left(x - \frac{4}{3}\right)\left(x - \frac{5}{2}\right)$

8. $12\left(x - \frac{5}{3}\right)\left(x + \frac{7}{4}\right)$

Problem Solving

1. $x - 8$ m
 2. rug: $(x + 5)(x - 4)$; wall: $(x + 2)(x + 15)$;
 rug: 16 ft by 25 ft, wall: 22 ft by 35 ft
 3. a. $x + 5$
 b. 12 in. by 19 in.
 c. $x^2 + x - 12$
 4. D 5. J
 6. B

Reading Strategies

1. +; + 2. +; -
 3. +; + 4. -; -
 5. +; - 6. -; -
 7. +; - 8. +; -
 9. +; + 10. $(x - 3)(x - 7)$

LESSON 8-4

Practice A

1. 1; $(x + 3)(5x + 2)$ 2. $(2x + 3)(2x + 5)$
 3. $(3x + 5)(x + 4)$ 4. $(3x + 2)(2x + 5)$
 5. $(2x + 1)(4x + 7)$ 6. $(2x + 3)(4x + 1)$
 7. $(4x - 1)(x - 8)$ 8. $(3x - 7)(3x - 2)$
 9. $(3x - 5)(2x - 5)$ 10. $(5x - 2)(x - 4)$
 11. $(7x - 5)(3x - 1)$ 12. $(4x - 3)(3x - 4)$
 13. $(5x + 9)(2x - 1)$ 14. $(3x + 4)(x - 1)$
 15. $(x + 2)(5x - 3)$ 16. $(4x + 3)(x - 3)$
 17. $(2x + 1)(2x - 7)$ 18. $(3x + 4)(2x - 5)$
 19. $(5x^2 + 48x + 27)$; $(5x + 3)(x + 9)$
 20. $-1(2x - 1)(3x - 4)$
 21. $-1(5x + 2)(4x - 3)$ 22. $4x + 1$

Practice B

1. $(2x + 3)(x + 5)$ 2. $(3x + 4)(x + 2)$
 3. $(2x + 9)(2x + 3)$ 4. $(5x + 1)(x + 4)$
 5. $(4x + 7)(x + 1)$ 6. $(3x - 4)(2x - 5)$
 7. $(7x - 3)(x - 8)$ 8. $(3x - 5)(x - 3)$
 9. $(8x - 1)(x - 9)$ 10. $(2x + 13)(x - 1)$
 11. $(3x + 8)(x - 2)$ 12. $(x + 10)(2x - 3)$
 13. $(x + 4)(8x - 3)$ 14. $(x + 3)(11x - 8)$
 15. $(3x + 1)(3x - 2)$ 16. $(4x + 3)(3x - 4)$
 17. $(9x + 5)(x - 6)$ 18. $(3x + 8)(2x - 5)$
 19. $-1(4x + 9)(3x + 2)$
 20. $-1(5x - 6)(4x - 1)$
 21. $-1(2x + 7)(x - 6)$
 22. $5x - 8$

Practice C

1. $(3d + 7)(2d + 1)$ 2. $(7x - 3)(2x - 3)$
 3. $(2c + 1)(8c + 5)$ 4. $(4b + 5)(5b - 1)$
 5. $(6m - 5)(2m - 5)$ 6. $(2x + 7)(3x - 4)$
 7. $-1(5x + 3)(4x + 9)$ 8. $(t + 7)(4t - 7)$
 9. $(5f + 9)(3f + 2)$ 10. $(16h + 5)(4h - 3)$
 11. $(15a - 8)(a - 4)$
 12. $-1(2x + 9)(2x - 5)$
 13. $(3x + 50)(2x - 3)$ 14. $(4x + 5)(x + 2)$