

# 7.5 Exercises

Dynamic Solutions available at [BigIdeasMath.com](http://BigIdeasMath.com)

## Vocabulary and Core Concept Check

- WRITING** You are factoring  $x^2 + 11x - 26$ . What do the signs of the terms tell you about the factors? Explain.
- OPEN-ENDED** Write a trinomial that can be factored as  $(x + p)(x + q)$ , where  $p$  and  $q$  are positive.

## Monitoring Progress and Modeling with Mathematics

In Exercises 3–8, factor the polynomial. (See Example 1.)

- |                     |                     |
|---------------------|---------------------|
| 3. $x^2 + 8x + 7$   | 4. $z^2 + 10z + 21$ |
| 5. $n^2 + 9n + 20$  | 6. $s^2 + 11s + 30$ |
| 7. $h^2 + 11h + 18$ | 8. $y^2 + 13y + 40$ |

In Exercises 9–14, factor the polynomial. (See Example 2.)

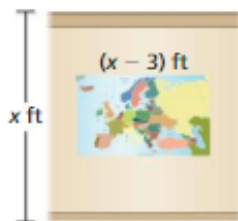
- |                      |                      |
|----------------------|----------------------|
| 9. $v^2 - 5v + 4$    | 10. $x^2 - 13x + 22$ |
| 11. $d^2 - 5d + 6$   | 12. $k^2 - 10k + 24$ |
| 13. $w^2 - 17w + 72$ | 14. $j^2 - 13j + 42$ |

In Exercises 15–24, factor the polynomial. (See Example 3.)

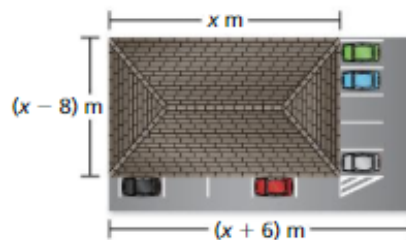
- |                      |                      |
|----------------------|----------------------|
| 15. $x^2 + 3x - 4$   | 16. $z^2 + 7z - 18$  |
| 17. $n^2 + 4n - 12$  | 18. $s^2 + 3s - 40$  |
| 19. $y^2 + 2y - 48$  | 20. $h^2 + 6h - 27$  |
| 21. $x^2 - x - 20$   | 22. $m^2 - 6m - 7$   |
| 23. $-6t - 16 + t^2$ | 24. $-7y + y^2 - 30$ |

25. **MODELING WITH MATHEMATICS** A projector displays an image on a wall. The area (in square feet) of the projection is represented by  $x^2 - 8x + 15$ .

- Write a binomial that represents the height of the projection.
- Find the perimeter of the projection when the height of the wall is 8 feet.



26. **MODELING WITH MATHEMATICS** A dentist's office and parking lot are on a rectangular piece of land. The area (in square meters) of the land is represented by  $x^2 + x - 30$ .



- Write a binomial that represents the width of the land.
- Find the area of the land when the length of the dentist's office is 20 meters.

**ERROR ANALYSIS** In Exercises 27 and 28, describe and correct the error in factoring the polynomial.

27.  $x^2 + 14x + 48 = (x + 4)(x + 12)$

28.  $s^2 - 17s - 60 = (s - 5)(s - 12)$

In Exercises 29–38, solve the equation.

- |                           |                          |
|---------------------------|--------------------------|
| 29. $m^2 + 3m + 2 = 0$    | 30. $n^2 - 9n + 18 = 0$  |
| 31. $x^2 + 5x - 14 = 0$   | 32. $v^2 + 11v - 26 = 0$ |
| 33. $t^2 + 15t = -36$     | 34. $n^2 - 5n = 24$      |
| 35. $a^2 + 5a - 20 = 30$  | 36. $y^2 - 2y - 8 = 7$   |
| 37. $m^2 + 10 = 15m - 34$ | 38. $b^2 + 5 = 8b - 10$  |