9.4 EXERCISES

HOMEWORK KEY

- = **WORKED-OUT SOLUTIONS** on p. WS1 for Exs. 3 and 55
- = **TAKS PRACTICE AND REASONING** Exs. 15, 39, 53, 56, 60, and 61
- = **MULTIPLE REPRESENTATIONS** Ex. 58

SKILL PRACTICE

1. **VOCABULARY** What is the vertical motion model and what does each variable in the model represent?

2. **WRITING** *Explain* how to use the zero-product property to find the solutions of the equation $3x(x - 7) = 0$.

EXAMPLE 1 on p. 575 for Exs. 3–16

ZERO-PRODUCT PROPERTY **Solve the equation.**

3. $(x - 5)(x + 3) = 0$
4. $(y + 9)(y - 1) = 0$
5. $(z - 13)(z - 14) = 0$
6. $(c + 6)(c + 8) = 0$
7. $(d - 7)\left(d + \frac{4}{3}\right) = 0$
8. $\left(g - \frac{1}{8}\right)(g + 18) = 0$
9. $(m - 3)(4m + 12) = 0$
10. $(2n - 14)(3n + 9) = 0$
11. $(3n + 11)(n + 1) = 0$
12. $(3x + 1)(x + 6) = 0$
13. $(2y + 5)(7y - 5) = 0$
14. $(8z - 6)(12z + 14) = 0$

15. **TAKS REASONING** What are the solutions of the equation $(y - 12)(y + 6) = 0$?

Ⓐ -12 and -6 Ⓑ -12 and 6 Ⓒ -6 and 12 Ⓓ 6 and 12

16. **ERROR ANALYSIS** *Describe* and correct the error in solving $(z - 15)(z + 21) = 0$.

$(z - 15)(z + 21) = 0$
$z = -15$ or $z = 21$

EXAMPLE 2 on p. 576 for Exs. 17–26

FACTORING EXPRESSIONS **Factor out the greatest common monomial factor.**

17. $2x + 2y$
18. $6x^2 - 15y$
19. $3s^4 + 16s$
20. $5d^6 + 2d^5$
21. $7w^5 - 35w^2$
22. $9m^7 - 3m^2$
23. $15n^3 + 25n$
24. $12a^5 + 8a$
25. $\frac{5}{2}x^6 - \frac{1}{2}x^4$

26. **ERROR ANALYSIS** *Describe* and correct the error in factoring out the greatest common monomial factor of $18x^8 - 9x^4 - 6x^3$.

$18x^8 - 9x^4 - 6x^3 = 3x(6x^7 - 3x^3 - 2x^2)$

EXAMPLES 3 and 4 on p. 576 for Exs. 27–39

SOLVING EQUATIONS **Solve the equation.**

27. $b^2 + 6b = 0$
28. $5w^2 - 5w = 0$
29. $-10n^2 + 35n = 0$
30. $2x^2 + 15x = 0$
31. $18c^2 + 6c = 0$
32. $-32y^2 - 24y = 0$
33. $3k^2 = 6k$
34. $6h^2 = 3h$
35. $4s^2 = 10s$
36. $-42z^2 = 14z$
37. $28m^2 = -8m$
38. $-12p^2 = -30p$

39. **TAKS REASONING** What are the solutions of $4x^2 = x$?

Ⓐ -4 and 0 Ⓑ $-\frac{1}{4}$ and 0 Ⓒ 0 and $\frac{1}{4}$ Ⓓ 0 and 4