



4.8 EXERCISES

HOMEWORK KEY

-  = **WORKED-OUT SOLUTIONS**
on p. WS1 for Exs. 19, 39, and 71
-  = **TAKS PRACTICE AND REASONING**
Exs. 12, 51, 55, 62, 69, 72, 73, 75, and 76

SKILL PRACTICE

- VOCABULARY** Copy and complete: You can use the ? of a quadratic equation to determine the equation's number and type of solutions.
- WRITING** Describe a real-life situation in which you can use the model $h = -16t^2 + v_0t + h_0$ but not the model $h = -16t^2 + h_0$.

EXAMPLES 1, 2, and 3

on pp. 292–293
for Exs. 3–30

EQUATIONS IN STANDARD FORM Use the quadratic formula to solve the equation.

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|------------------------|--------------------------|--------------------------|
| 3. $x^2 - 4x - 5 = 0$ | 4. $x^2 - 6x + 7 = 0$ | 5. $t^2 + 8t + 19 = 0$ |
| 6. $x^2 - 16x + 7 = 0$ | 7. $8w^2 - 8w + 2 = 0$ | 8. $5p^2 - 10p + 24 = 0$ |
| 9. $4x^2 - 8x + 1 = 0$ | 10. $6u^2 + 4u + 11 = 0$ | 11. $3r^2 - 8r - 9 = 0$ |

- TAKS REASONING** What are the complex solutions of the equation $2x^2 - 16x + 50 = 0$?

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|------------------------|--------------------------|
| (A) $4 + 3i, 4 - 3i$ | (B) $4 + 12i, 4 - 12i$ |
| (C) $16 + 3i, 16 - 3i$ | (D) $16 + 12i, 16 - 12i$ |

EQUATIONS NOT IN STANDARD FORM Use the quadratic formula to solve the equation.

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|---------------------------|--------------------------|-----------------------------|
| 13. $3w^2 - 12w = -12$ | 14. $x^2 + 6x = -15$ | 15. $s^2 = -14 - 3s$ |
| 16. $-3y^2 = 6y - 10$ | 17. $3 - 8v - 5v^2 = 2v$ | 18. $7x - 5 + 12x^2 = -3x$ |
| 19. $4x^2 + 3 = x^2 - 7x$ | 20. $6 - 2t^2 = 9t + 15$ | 21. $4 + 9n - 3n^2 = 2 - n$ |

SOLVING USING TWO METHODS Solve the equation using the quadratic formula. Then solve the equation by factoring to check your solution(s).

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|----------------------------|-----------------------------|------------------------------|
| 22. $z^2 + 15z + 24 = -32$ | 23. $x^2 - 5x + 10 = 4$ | 24. $m^2 + 5m - 99 = 3m$ |
| 25. $s^2 - s - 3 = s$ | 26. $r^2 - 4r + 8 = 5r$ | 27. $3x^2 + 7x - 24 = 13x$ |
| 28. $45x^2 + 57x + 1 = 5$ | 29. $5p^2 + 40p + 100 = 25$ | 30. $9n^2 - 42n - 162 = 21n$ |

EXAMPLE 4

on p. 294
for Exs. 31–39

USING THE DISCRIMINANT Find the discriminant of the quadratic equation and give the number and type of solutions of the equation.

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|-------------------------------|-------------------------------|------------------------------|
| 31. $x^2 - 8x + 16 = 0$ | 32. $s^2 + 7s + 11 = 0$ | 33. $8p^2 + 8p + 3 = 0$ |
| 34. $-4w^2 + w - 14 = 0$ | 35. $5x^2 + 20x + 21 = 0$ | 36. $8z - 10 = z^2 - 7z + 3$ |
| 37. $8n^2 - 4n + 2 = 5n - 11$ | 38. $5x^2 + 16x = 11x - 3x^2$ | 39. $7r^2 - 5 = 2r + 9r^2$ |

SOLVING QUADRATIC EQUATIONS Solve the equation using any method.

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|--------------------------------|--|--|
| 40. $16t^2 - 7t = 17t - 9$ | 41. $7x - 3x^2 = 85 + 2x^2 + 2x$ | 42. $4(x - 1)^2 = 6x + 2$ |
| 43. $25 - 16v^2 = 12v(v + 5)$ | 44. $\frac{3}{2}y^2 - 6y = \frac{3}{4}y - 9$ | 45. $3x^2 + \frac{9}{2}x - 4 = 5x + \frac{3}{4}$ |
| 46. $1.1(3.4x - 2.3)^2 = 15.5$ | 47. $19.25 = -8.5(2r - 1.75)^2$ | 48. $4.5 = 1.5(3.25 - s)^2$ |