

4-5**Practice**

Form G

Quadratic Equations**Solve each equation by factoring. Check your answers.**

1. $x^2 - 2x - 24 = 0$

2. $3x^2 = x + 4$

3. $x^2 - 6x + 9 = 0$

4. $3x^2 + 45 = 24x$

5. $4x^2 + 6x = 0$

6. $7x^2 = 21x$

7. $(x + 2)^2 = 49$

8. $x + 3 = 24x^2$

Solve each equation using tables. Give each answer to at most two decimal places.

9. $5x^2 + 7x - 6 = 0$

10. $x^2 - 2x = 1$

11. $2x^2 - x = 5$

12. $x^2 - 4x + 2 = 0$

13. $3x^2 + 7x = 1$

14. $2x^2 - 3x = 15$

Solve each equation by graphing. Give each answer to at most two decimal places.

15. $10x^2 = 4 - 3x$

16. $3x^2 + 2x = 2$

17. $4x^2 - x = 6$

18. $4x^2 + 3x = 6 - 2x$

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

20. $5 - x = \frac{1}{2}x^2$

21. A woman drops a front door key to her husband from their apartment window several stories above the ground. The function $h = -16t^2 + 64$ gives the height h of the key in feet, t seconds after she releases it.

- How long does it take the key to reach the ground?
- What are the reasonable domain and range for the function h ?

4-5

Practice (continued)

Form G

Quadratic Equations

22. The function $C = 75x + 2600$ gives the cost, in dollars, for a small company to manufacture x items. The function $R = 225x - x^2$ gives the revenue, also in dollars, for selling x items. How many items should the company produce so that the cost and revenue are equal?
23. The function $a = 2.4t - 0.1t^2$ gives the amount a , in micromilligrams (mmg), of a drug in a patient's bloodstream t hours after being ingested in tablet form. When is the amount of the drug equal to 8 mmg? (*Hint: Multiply the equation you write by 10 before solving.*)
24. You use a rectangular piece of cardboard measuring 20 in. by 30 in. to construct a box. You cut squares with sides x in. from each corner of the piece of cardboard and then fold up the sides to form the bottom.
- Write a function A representing the area of the base of the box in terms of x .
 - What is a reasonable domain for the function A ?
 - Write an equation if the area of the base must be 416 in.².
 - Solve the equation in part (c) for values of x in the reasonable domain.
 - What are the dimensions of the base of the box?

Solve each equation by factoring, using tables, or by graphing. If necessary, round your answer to the nearest hundredth.

25. $9x^2 = 49$

26. $x^2 + 10x + 17 = 0$

27. $4x^2 + 1 = 8x$

28. $5x^2 - 2x - 7 = 0$

29. $4(x^2 - x) = 19$

30. $25x^2 + 20x + 4 = 0$

31. $3x^2 = 4x + 32$

32. $x^2 - 5x - 12 = 0$