

Chapter Test (continued)**Form A****Chapter 5****Solve each quadratic equation.**

23. $x^2 - 16 = 0$

24. $2x^2 - 3x - 11 = 0$

25. $x^2 + 3x - 10 = 0$

26. $3x^2 + 48 = 0$

27. $x^2 - 5x + 4 = 0$

28. $2x^2 - x + 1 = 0$

Solve by completing the square. Show your work.

29. $2x^2 - 6x + 1 = 0$

30. $-x^2 - 8x + 5 = 0$

31. $9x^2 - 18x - 1 = 0$

32. $-4x^2 + 8x - 3 = 0$

Write each function in vertex form. Sketch the graph of the function and label its vertex.

33. $y = x^2 + 4x - 7$

34. $y = -x^2 + 4x - 1$

35. $y = 3x^2 + 18x$

36. $y = \frac{1}{2}x^2 - 5x + 12$

Evaluate the discriminant of each equation. How many real and imaginary solutions does each have?

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

38. $3x^2 - 4x + 3 = 0$

39. $-2x^2 - 5x + 4 = 0$

40. $16x^2 - 8x + 1 = 0$

41. Anthony has 10 ft of framing and wants to use it to make the largest rectangular picture frame possible. Find the maximum area that can be enclosed by his frame.
42. A ball is thrown upward from ground level. Its height h , in feet, above the ground after t seconds is $h = 48t - 16t^2$. Find the maximum height of the ball.
43. Suppose a parabola has a vertex in Quadrant IV and $a < 0$ in the equation $y = ax^2 + bx + c$. How many real solutions will the equation $ax^2 + bx + c = 0$ have?