

Writing a Complex Number in Standard Form
In Exercises 11–22, write the complex number in standard form.

11. $8 + \sqrt{-25}$

13. $2 - \sqrt{-27}$

19. $-10i + i^2$

Performing Operations with Complex Numbers
In Exercises 23–42, perform the operation and write the result in standard form.

31. $-\left(\frac{3}{2} + \frac{5}{2}i\right) + \left(\frac{5}{3} + \frac{11}{3}i\right)$

35. $12i(1 - 9i)$

37. $(\sqrt{14} + \sqrt{10}i)(\sqrt{14} - \sqrt{10}i)$

39. $(6 + 7i)^2$

Multiplying Conjugates In Exercises 43–50, write the complex conjugate of the complex number. Then multiply the number by its complex conjugate.

43. $9 + 2i$

45. $-1 - \sqrt{5}i$

Quotient of Complex Numbers in Standard Form In Exercises 51–60, write the quotient in standard form.

51. $\frac{3}{i}$

55. $\frac{5 + i}{5 - i}$

57. $\frac{9 - 4i}{i}$

Performing Operations with Complex Numbers
In Exercises 61–64, perform the operation and write the result in standard form.

61. $\frac{2}{1 + i} - \frac{3}{1 - i}$

Writing a Complex Number in Standard Form
In Exercises 65–70, write the complex number in standard form.

65. $\sqrt{-6} \cdot \sqrt{-2}$

69. $(3 + \sqrt{-5})(7 - \sqrt{-10})$

Complex Solutions of a Quadratic Equation In Exercises 71–80, use the Quadratic Formula to solve the quadratic equation.

71. $x^2 - 2x + 2 = 0$

77. $\frac{3}{2}x^2 - 6x + 9 = 0$

Simplifying a Complex Number In Exercises 81–90, simplify the complex number and write it in standard form.

81. $-6i^3 + i^2$