

For #1-3, write a quadratic function in standard form for each given set of zeros.

1. 2 and -3

2. -6 and -1

3.  $\frac{4}{3}$  and  $\frac{2}{5}$

For #4-15, solve. Write the solution in simplest radical form.

4.  $x^2 - 16x + 48 = 0$

5.  $x^2 - 6x = 16$

6.  $2x^2 - 8x = 0$

7.  $-3x^2 + 15x = 12$

8.  $x^2 + 2x + 9 = 0$

9.  $2x^2 - 12x + 10 = 0$

10.  $3(x - 1)^2 - 1 = 59$

11.  $6x^2 + 7 = 115$

12.  $x^2 + 2x - 7 = 14$

13.  $x^2 + 2x - 24 = 0$

$$14. x^2 + 20x + 84 = 0$$

$$15. (x + 1)^2 - 2 = -26$$

For #16-18, simplify the square roots.

$$16. \sqrt{-48}$$

$$17. -3\sqrt{-128}$$

$$18. \sqrt{-256}$$

For #19-22, find the discriminant, the type and number of solutions for each equation.

$$19. x^2 + 3x + 8 = 0$$

$$20. 2x^2 - 4x + 2 = 0$$

$$21. -2x^2 - 5x + 3 = 0$$

$$22. -x^2 + 3x + 3 = 0$$

For #23-25, solve each inequality. Leave in interval notation.

$$23. x^2 - 8x + 14 < 2$$

$$24. 2x^2 - 3x - 9 \geq 0$$

$$25. x^2 + 13x + 39 \leq -3$$

For #26-37, perform each indicated operation. Write the result in the form  $a + bi$ .

26.  $(2 - 3i) + (2 - 9i)$

27.  $(2 + 3i) + (7 + i)$

28.  $(4 - 3i) - (9 + i)$

29.  $(12 - 3i) - (-2i - 9)$

30.  $5i(2 + i)$

31.  $-2i(3 - 5i)$

32.  $(4 + 3i)(2 + 7i)$

33.  $(3 + i)(1 + 5i)$

34.  $i^{13}$

35.  $-2i^{22}$

36.  $\frac{8+2i}{1-3i}$

37.  $\frac{5+i}{-3i}$