

**Chapter 9 Test****Find the roots of the quadratic. (9.1)**

1.  $(x - 6)(x + 4) = 0$

2.  $(x + 0.7)(x + 12) = 0$

3.  $(x - 5.2)(x + 1.5) = 0$

4.  $(x - 0.4)(x - 6.5) = 0$

5.  $(x - \frac{2}{3})(x + 14) = 0$

6.  $(x + 15)(x + 2) = 0$

7.  $x^2 + 8x + 15 = 0$

8.  $(x - 3.9)(x - \frac{1}{4}) = 0$

9.  $9x^2 = 1$

10.  $b^2 - 10b = -25$

11.  $3x^2 - 10x + 8 = 0$

**Find the roots of the quadratic by completing the square. (9.2)**

12.  $y^2 + 6y = 8$

13.  $a^2 + 9a - 12 = 0$

14.  $r^2 + 18r - 24 = 0$

15.  $x^2 + x - 16 = 0$

16.  $2y^2 + 8y = 10$

17.  $2x^2 + 12x - 7 = 0$

18.  $2a^2 + 14a + 14 = 0$

19.  $x^2 + 5x - 1 = 0$

20.  $y^2 + 18y - 9 = 0$

21.  $x^2 - 10x - 25 = 0$

22.  $x^2 - 28x - 19 = 0$

23.  $y^2 + 14y - 21 = 0$

**Using the quadratic formula, find the roots of the quadratic. (9.3)**

24.  $x^2 + x - 9 = 0$

25.  $x^2 - 8x - 12 = 0$

26.  $2x^2 + 10x - 5 = 0$

27.  $x^2 + 10x - 7 = 0$

28.  $3x^2 + 16x - 20 = 0$

29.  $5x^2 - x - 13 = 0$

30.  $6x^2 - 11x - 15 = 0$

31.  $7x^2 - 4x - 14 = 0$

32.  $9x^2 - 8x + 26 = 0$

**Use the discriminant to determine if the quadratic has roots. (9.4)**

33.  $x^2 + 12x + 7 = 0$

34.  $x^2 - 2x + 15 = 0$

35.  $3x^2 + 18x + 25 = 0$

36.  $x^2 + 0.5x + 2 = 0$

37.  $4x^2 + 15x + 12 = 0$

38.  $4x^2 - 12x + 11 = 0$

39.  $5x^2 + 13x + 6 = 0$

40.  $6x^2 + 15x + 1 = 0$

41.  $4x^2 - 8x + 5 = 0$

**Solve and find the value of  $y$  when  $x$  is 24. Round off answers to the nearest hundredth. (9.4)**

42.  $y = 25,500(1 - 0.3)^x$

43.  $y = 44,600(0.32)^x$

44.  $y = 830(1 + 0.1)^x$

45.  $y = 230,000(1 - 0.6)^x$

46.  $y = 5,000(0.045)^x$

47.  $y = 0.00677(1 - 0.028)^x$

**Solve. (9.4)**

48. At the beginning of her retirement at age 60, Danielle receives a severance check from her employer for \$950,000. If she buys municipals bonds that yields 4.5% per year, how much money would Danielle have when she turns 70?

49. A glass filled with 5,000 milligrams of chemicals contains 2,000 mg of acetone. If the acetone evaporates at the rate of 80 mg per minute, how much acetone is left in the glass after one hour?