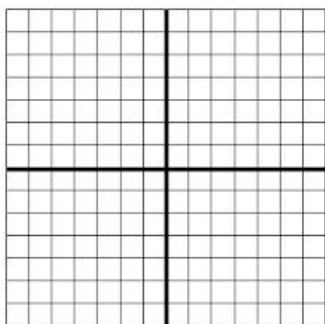


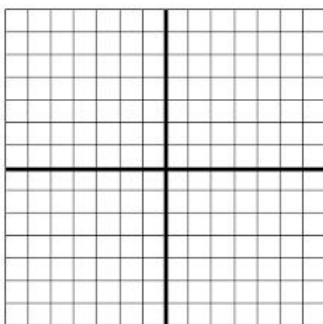
**Chapter 1: Quadratic Functions and Factoring.**

**Graph. Label the Vertex.**

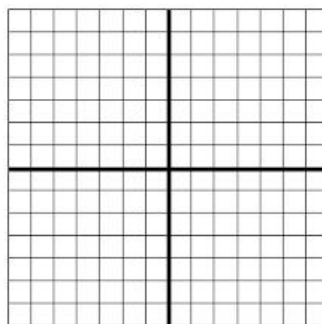
1.  $y = x^2 - 8x - 20$



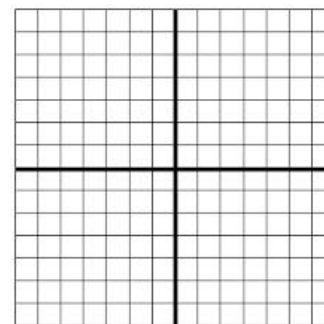
2.  $y = -(x+3)^2 + 5$



3.  $y = 2(x+4)(x-2)$



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



**Factor the expression.**

5.  $x^2 - 11x + 30$

6.  $x^2 - 64$

7.  $2x^2 + 7x - 15$

**Solve the equation.**

8.  $x^2 - 3x - 40 = 0$

9.  $10x^2 + 11x - 6 = 0$

10.  $(x - 1)^2 = 48$

11.  $(x+2)^2 - 12 = 6$

**Solve by Completing the Square. Show Work.**

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

13.  $x^2 - 4x - 5 = 0$

**Solve by using Quadratic Formula.**

14.  $x^2 - 4x + 6 = 0$

15.  $2x^2 - x + 6 = 0$

**Simplify the complex numbers.**

16.  $(2 - 6i) + (8 - 10i)$

17.  $(7 + 3i) - (12 - 4i)$

18.  $(2 - 5i)(1 + 3i)$

19.  $\frac{2+i}{2-3i}$

**Chapter 2: Polynomial and Polynomial Functions.**

**Simplify.**

20.  $3^{12} \cdot 3^{-9}$

21.  $\left(\frac{1}{2}\right)^{-3}$

22.  $\frac{x^{14}}{x^5}$

23.  $\frac{12x^{-3}y^5}{4x^{-6}y^{-3}}$

24.  $(2x^3y^{-4})^2$

**Factor.**

25.  $x^3 - 27$

26.  $x^3 - 3x^2 - 4x + 12$

27.  $8x^3 + 125$

28.  $2x^3 - 7x^2 - 8x + 28$

**Divide.**

29.  $(4x^4 - 17x^2 + 9x - 18) \div (2x^2 - 2)$

30.  $(8x^2 + 34x - 1) \div (4x - 1)$

31.  $(2x^3 - 11x^2 + 13x - 44) \div (x - 5)$

**Solve. Find all the zeros of the function.**

32.  $f(x) = x^3 + x^2 - 22x - 40$

33.  $f(x) = x^3 + 6x^2 + 5x - 12$

34.  $y = 4x^4 - 8x^3 - 19x^2 + 23x - 6$

**Write the equation given the zeros.**

35.  $1, -1, 5$

36.  $2i, 6$

37.  $-1, 3, 4$

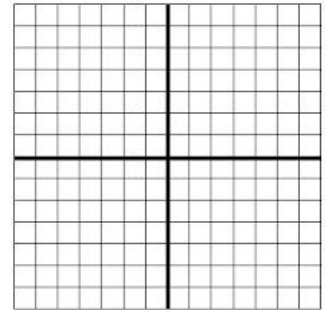
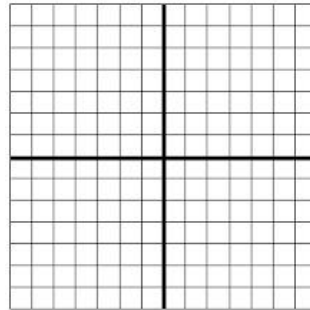
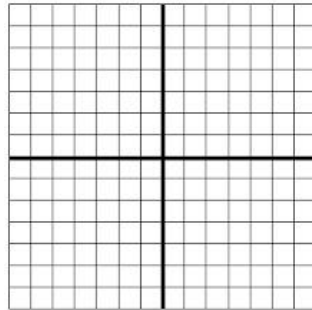
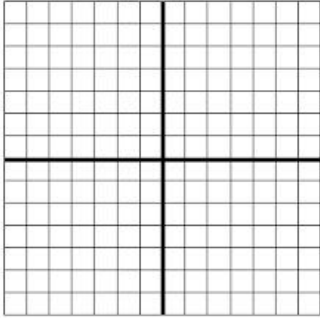
**Graph. Label three points.**

38.  $f(x) = x^4 + 2$

39.  $f(x) = 2x^3$

40.  $y = x^5 - x^4 - 9$

41.  $y = -x^6$



### Chapter 3: Rational Exponents and Radical Functions

**Evaluate.**

42.  $\sqrt[3]{64}$

43.  $125^{2/3}$

44.  $8^{5/3}$

45.  $(\sqrt[3]{-27})^2$

**Simplify.**

46.  $2^{1/4} \cdot 2^{3/4}$

47.  $\sqrt[4]{16x^7y^{12}}$

48.  $x^{1/3} \cdot x^{1/5}$

49.  $\sqrt[5]{16} \sqrt[5]{8}$

**Answer the following if  $f(x) = 2x + 9$  and  $g(x) = 3x - 1$**

50.  $f(x) + g(x)$

51.  $f(x) - g(x)$

52.  $f(x) \cdot g(x)$

53.  $f(4)$

54.  $g(7)$

55.  $f(g(x))$

56.  $g(f(x))$

57.  $\frac{f(x)}{g(x)}$

58.  $f(g(3))$

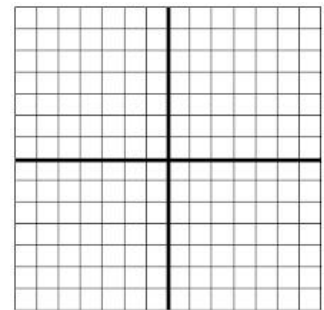
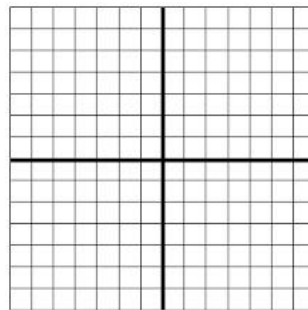
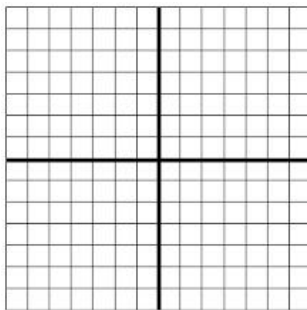
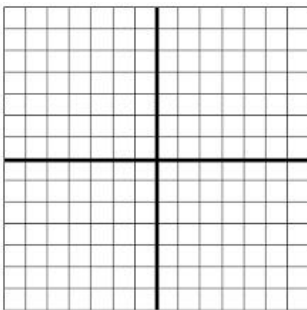
**Graph. State the domain and range.**

59.  $y = \sqrt{x + 1}$

60.  $y = \sqrt[3]{x} - 5$

61.  $y = 2\sqrt{x} + 3$

62.  $y = \sqrt[3]{x - 2} - 1$



**Solve.**

63.  $x^{2/3} = 9$

64.  $2x^{1/3} = 4$

65.  $\sqrt{x + 1} = \sqrt{3x - 7}$