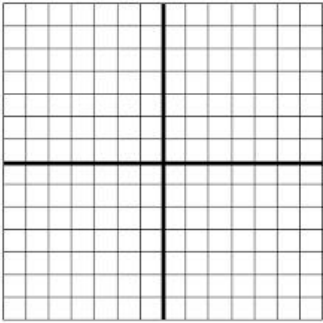
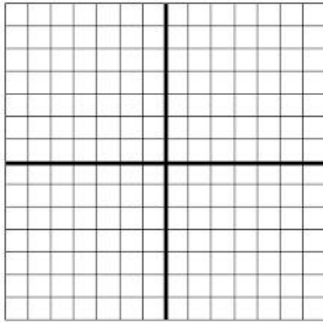


Chapter 1: Quadratic Functions and Factoring.**Graph. Label the Vertex.**

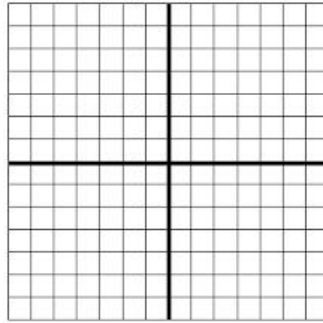
1. $y = x^2 - 8x - 20$



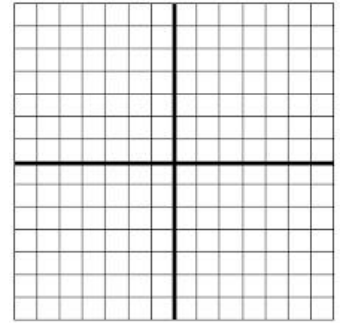
2. $y = -(x + 3)^2 + 5$



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. $(x - 1)^2 = 20$

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

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

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

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

Solve. Find all the zeros of the function. The first one is given.

32. $f(x) = x^3 + x^2 - 22x - 40$; 5

33. $f(x) = x^3 + 6x^2 + 5x - 12$; 1

Write the equation given the zeros.

35. 1, 2, 5

36. $2i, -2i$

37. $\sqrt{5}, -\sqrt{5}$

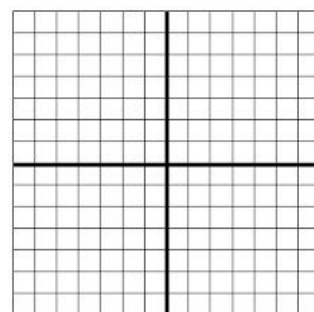
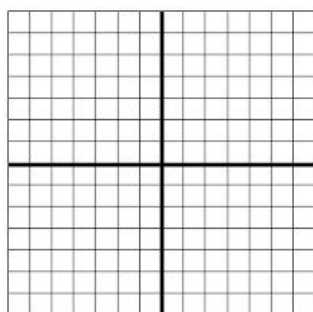
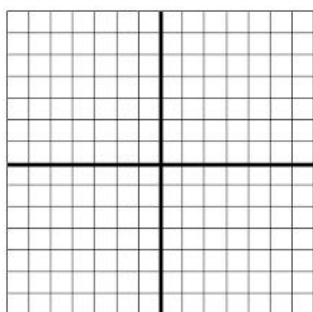
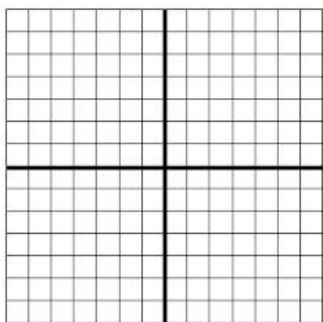
Graph. Label three points.

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

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

40. $y = (x+1)(x-3)(x-1)$

41. $y = (x+1)^2(x-3)$



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. $f(g(x))$

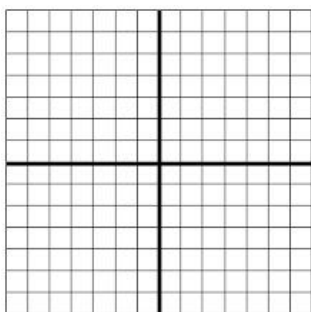
56. $g(f(x))$

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

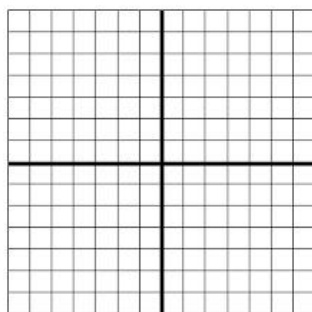
58. $f(g(3))$

Graph. State the domain and range.

59. $y = \sqrt{x - 1} + 3$



60. $y = 2\sqrt[3]{x + 2} - 5$



Solve the Radical Equation.

61. $\sqrt{3x + 7} = 4$

62. $3x^{2/3} = 27$

63. $\sqrt[3]{2x + 1} = 3$