Some Review: Module 3

Name _____ Period _____

Write each exponential expression in radical form.

1. $10^{\frac{3}{2}}$

2. $x^{\frac{1}{5}}$

3. $3n^{\frac{1}{3}}$

4. $6^{\frac{2}{7}}$

5. $7^{\frac{5}{3}}$

6. $t^{\frac{4}{5}}$

Write each radical expression in exponential form.

7. $\left(\sqrt[5]{3}\right)$

8. $\left(\sqrt[6]{7a}\right)^5$

9. $\sqrt{x^3}$

10. $\sqrt[3]{n^5}$

11. $\left(\sqrt[y]{n}\right)^x$

12. $\sqrt[p]{n^q}$

Solve each of the quadratics below using an appropriate and efficient method. State the method used and be sure to use each method at least twice.

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

14. $3x^2 - 5 = 0$

15. $5x^2 - 10 = 0$

16. $x^2 + 1x - 30 = 0$

17. $x^2 + 2x = 48$

18. $x^2 - 3x = 0$

19. $x^2 + 9x + 18 = 0$

20. $x^2 - 2x - 3 = 0$

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

22. $(x - 2)(x + 3) = 0$

23. $10x^2 - x + 9 = 0$

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

Write each quadratic function below in vertex form.

25. $x^2 + 6x + 5$

26. $(x + 3)(x - 5)$

27. $(x - 2)(x + 6)$

28. $x^2 - 12x + 20$

29. $2x^2 + 16x + 8$

30. $x^2 - 2x - 8$

Use the discriminate to determine the nature of the roots to the quadratic equation.

31. $x^2 - 5x + 7 = 0$

32. $x^2 - 5x + 6 = 0$

33. $2x^2 - 5x + 5 = 0$

34. $x^2 + 7x + 2 = 0$

35. $2x^2 + 7x + 6 = 0$

36. $2x^2 + 7x + 7 = 0$

37. $2x^2 - 7x + 6 = 0$

38. $2x^2 + 7x - 6 = 0$

39. $x^2 + 6x + 9 = 0$

Determine the number of roots that each polynomial will have.

40. $x^5 + 7x^3 - x^2 + 4x - 21$

41. $4x^3 + 2x^2 - 3x - 9$

42. $2x^7 + 4x^3 - 5x^2 + 16x + 3$

If the given quadratic function can be factored then factor and provide the x-intercepts. If you cannot factor the function then use the quadratic formula to find the x-intercepts.

43. $A(x) = x^2 + 4x - 21$

44. $B(x) = 5x^2 + 16x + 3$

45. $C(x) = x^2 - 4x + 1$

46. $D(x) = x^2 - 16x + 4$

47. $E(x) = x^2 + 3x - 40$

48. $F(x) = 2x^2 - 3x - 9$

49. $G(x) = x^2 - 3x$

50. $H(x) = x^2 + 6x + 8$

51. $K(x) = 3x^2 - 11$

52. What is a complex number? Why are we talking about them?

53. Explain when you will have complex numbers for roots. Give a good explanation with examples and considering multiple types of equation forms.