2.08 *Review of Factoring*

Having just completed several sections of factoring e*x*ercises, it is a good idea to put it all together in a summary review. This is essential, especially considering the importance of factoring to concepts yet to come.

EXERCISES. **In each of the following, factor completely. Show all necessary steps.**

1. $x^2 - 16$
   $= (\quad)(\quad)$

2. $x^2 - 49$
   $= (\quad)(\quad)$

3. $x^2 - 9x$
   $= \_\_\_\_(\quad)$

4. $x^2 - 81$

5. $x^2 - 100$

6. $x^2 - 64$

7. $x^2 - 36y^2$

8. $x^2 + 7x + 10$

9. $x^2 - 7x - 8$

10. $4x^2 - 9y^2$

11. $16x^2 - 1$

12. $x^2 + 2xy + y^2$

13. $x^2 - 36$

14. $a(a-b) + b(a-b) + c(a-b)$

15. $x^3 - 36x^2$

16. $x^2 - 12x + 36$

17. $x^2 - 3x - 10$

18. $x^2 + 10x + 25$

19. $x^2 - 5x + 6$

20. $x^2 - x - 90$

21. $x^2 + 19x + 34$

22. $-12x^2 - 6x$

23. $x^2 - 18x + 45$

24. $x^2 + 4x - 45$

25. $n(n-1) + 2(n-1)$

26. $25x^2 - 40x$

27. $9x^2 - 25y^2$

28. $3x^2 + 12xy$

29. $9 - 4x^2$

30. $x^3 + 7x^2$

31. $x^2 + 23x + 120$

32. $3x^2 + 29x + 40$

33. $x^2 + 4xy + 3y^2$

34. $n^2 + 9n - 10$

35. $27n^2 - 90mn$

36. $x^2 + 21x + 54$

Exercises 37 – 66, require two or more steps! Remember--factor the common factor first!

37. $3x^2 + 12x + 12$

$= \_\_\_\_(\quad\quad)$

$= \_\_\_\_(\quad\quad)(\quad\quad)$

$= \_\_\_\_(\quad\quad)^2$

38. $x^2y - 25y$

$= \_\_\_\_(\quad\quad)$

$= \_\_\_\_(\quad\quad)(\quad\quad)$

39. $x^4 - 1$

$= (\quad\quad)(\quad\quad)$

$= (\quad\quad)(\quad\quad)(\quad\quad)$

40. $x^3 - 2x^2 + 4x - 8$

$= x^2(\quad\quad) + 4(\quad\quad)$

$= (\quad\quad)(\quad\quad)$

41. $x^3 - 2x^2 - 4x + 8$

42. $5x^3 - 20x$

43. $x^3 - x$

44. $3x^2 + 39x + 120$

45. $10x^2 + 30x - 540$

46. $x^3 + 6x^2 - 7x$

47. $4x^2 - 8x - 60$

48. $x^2(x-2) - 16(x-2)$

49. $100x^2 - 25y^2$

50. $3x^2 - 75$

51. $2x^2 - 32x + 30$

52. $2x^2 - 32$

53. $x^3 + 8x^2 - 9x - 72$

54. $15x^4 - 60x^2$

55. $15x^2 - 60y^2$

56. $x^2 + 24x + 144$

57. $9x^2 - 9$

58. $x^3 + 3x^2 - 25x - 75$

59. $x^3 + 7x^2 + 10x$

60. $x^3 + 8x^2 + 16x$

61. $x^3 - 4x^2 - 16x + 64$

62. $x^3 + 2x^2 - 4x - 8$

63. $x^4 - 16$

64. $x^2y^2 - xy^2 - 2y^2$

65. $3x^3y + 21x^2y + 30xy$

66. $x^4 - 13x^2 + 36$

ANSWERS 2.08

p. 181-184: (NOTE: Factors may be given in <u>any</u> order!)

1. $(x-4)(x+4)$; **2.** $(x-7)(x+7)$; **3.** $x(x-9)$; **4.** $(x-9)(x+9)$; **5.** $(x-10)(x+10)$;
6. $(x-8)(x+8)$; **7.** $(x-6y)(x+6y)$; **8.** $(x+2)(x+5)$; **9.** $(x-8)(x+1)$; **10.** $(2x-3y)(2x+3y)$;
11. $(4x-1)(4x+1)$; **12.** $(x+y)^2$; **13.** $(x-6)(x+6)$; **14.** $(a-b)(a+b+c)$; **15.** $x^2(x-36)$;
16. $(x-6)^2$; **7.** $(x-5)(x+2)$; **18.** $(x+5)^2$; **19.** $(x-2)(x-3)$; **20.** $(x-10)(x+9)$; **21.** $(x+17)(x+2)$;
22. $-6x(2x+1)$; **23.** $(x-15)(x-3)$; **24.** $(x+9)(x-5)$; **25.** $(n-1)(n+2)$; **26.** $5x(5x-8)$;
27. $(3x-5y)(3x+5y)$; **28.** $3x(x+4y)$; **29.** $(3-2x)(3+2x)$; **30.** $x^2(x+7)$; **31.** $(x+8)(x+15)$;
32. $(3x+5)(x+8)$; **33.** $(x+3y)(x+y)$; **34.** $(n+10)(n-1)$; **35.** $9n(3n-10m)$; **36.** $(x+18)(x+3)$;
37. $3(x+2)^2$; **38.** $y(x-5)(x+5)$; **39.** $(x-1)(x+1)(x^2+1)$; **40.** $(x-2)(x^2+4)$;
41. $(x-2)^2(x+2)$; **42.** $5x(x-2)(x+2)$; **43.** $x(x-1)(x+1)$; **44.** $3(x+8)(x+5)$; **45.** $10(x+9)(x-6)$;
46. $x(x+7)(x-1)$; **47.** $4(x-5)(x+3)$; **48.** $(x-2)(x-4)(x+4)$; **49.** $25(2x-y)(2x+y)$;
50. $3(x-5)(x+5)$; **51.** $2(x-15)(x-1)$; **52.** $2(x-4)(x+4)$; **53.** $(x+8)(x-3)(x+3)$;
54. $15x^2(x-2)(x+2)$; **55.** $15(x-2y)(x+2y)$; **56.** $(x+12)^2$; **57.** $9(x-1)(x+1)$;
58. $(x+3)(x-5)(x+5)$; **59.** $x(x+5)(x+2)$; **60.** $x(x+4)^2$; **61.** $(x-4)^2(x+4)$; **62.** $(x+2)^2(x-2)$;
63. $(x-2)(x+2)(x^2+4)$; **64.** $y^2(x-2)(x+1)$; **65.** $3xy(x+5)(x+2)$; **66.** $(x-3)(x+3)(x-2)(x+2)$.