13.5 Exercises

Concept Check

Fill-in-the-Blank. Complete each sentence using information found in this section.

1. If a trinomial is not a perfect square trinomial, you can try factoring it by using the _____ method or the ___-method.
2. When factoring a polynomial with two terms, check to see if it is of the form of the sum or difference of two _____ or two _____.
3. Factoring can be checked by multiplying the factors. The product should be the _____ expression.
4. If there are four terms when factoring, consider factoring by _____.
5. When factoring, always look for a common _____ factor first.

True/False. Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (**Note:** There may be more than one acceptable change.)

6. You should always start by checking the number of terms when factoring a polynomial.
7. If a trinomial is to be factored, the trial-and-error or *ac*-methods can be used.
8. If there are four terms in a polynomial, it cannot be factored.

Practice

Completely factor each of the given polynomials. If a polynomial cannot be factored, write "not factorable."

1. m^2+7m+6
2. a^2-4a+3
3. $x^2+11x+18$
4. $y^2+8y+15$
5. x^2-100
6. $n^2-8n+12$
7. m^2-m-6
8. y^2-49
9. $a^2+2a+24$
10. $-x^2-12x-35$
11. $64a^2-1$
12. $49x^2+4$
13. $x^2+10x+25$
14. $x^2+3x-10$
15. $x^2+9x-36$
16. $x^2+16x+64$
17. $3a^2+12a-36$
18. $-2y^2+24y-70$
19. $-5x^2+70x-240$
20. $7t^2+14t-168$
21. $64+49t^2$
22. $3x^2-147$
23. x^3-4x^2-12x
24. $3n^3+15n^2+18n$
25. $112a-2a^2-2a^3$
26. $200x+20x^2-4x^3$
27. $16x^3-100x$
28. $48x^3-27x$
29. $-3x^2+17x-10$
30. $2x^2+7x+3$
31. $6x^2-11x+4$
32. $12x^2-32x+5$
33. $12m^2+m-6$

34. $6t^2+t-35$

35. $4x^2-14x+6$

36. $-4x^2+18x-20$

37. $8x^2+6x-35$

38. $12x^2+5x-3$

39. $20x^2-21x-54$

40. $21x^2-x-10$

41. $14+11x-15x^2$

42. $24+x-3x^2$

43. $-8a^2+22a-15$

44. $63x^2-40x-12$

45. $20y^2+9y-20$

46. $35x^2-x-6$

47. $18x^2-15x+2$

48. $12x^2-47x+11$

49. $-150x^2+96$

50. $252x-175x^3$

51. $12n^2-60n-75$

52. $-12x^3-2x^2-70x$

53. $21a^3-13a^2-2a$

54. $13x^3+120x^2+100x$

55. $36x^3+21x^2-30x$

56. $63x-3x^2-30x^3$

57. $16x^3-52x^2+22x$

58. $24y^3-4y^2-160y$

59. $75+10m+120m^2$

60. $144x^3-10x^2-50x$

61. $xy+3y-4x-12$

62. $2xz+10x+z+5$

63. $x^2+2xy-6x-12y$

64. $2y^2+6yz+5y+15z$

65. $-x^3+8x^2+5x-40$

66. $2x^3-14x^2-3x+21$

67. x^3+125

68. y^3-1000

69. $x^4y^3-x^4$

70. $x^6y^3-x^3$

71. $8a^6+27b^6$

72. a^9+64b^3

73. x^6y^3-125

74. x^3y^3+216

75. $x^3+7x^2-9x-63$

76. $x^5+5x^4-4x-20$

77. $9x^2-(y+6)^2$

78. $(x+2)^2-25a^2$

79. $(y^2+20y+100)-49x^2$

80. $(t^2+22t+121)-16s^2$