

15.  $12w^2 + w - 1$

16.  $15t^2 - 17t - 4$

57.  $15x^2 - x - 2$

58.  $15x^2 + 13x - 2$

Factor each trinomial using the ac method.

See Example 1.

See the Strategy for Factoring  $ax^2 + bx + c$  by the ac Method box on page 344.

17.  $2x^2 + 3x + 1$

 18.  $2x^2 + 11x + 5$

19.  $2x^2 + 9x + 4$

20.  $2h^2 + 7h + 3$

59.  $8x^2 - 6x + 1$

60.  $8x^2 - 22x + 5$

21.  $3t^2 + 7t + 2$

22.  $3t^2 + 8t + 5$

61.  $15x^2 - 31x + 2$

62.  $15x^2 + 31x + 2$

23.  $2x^2 + 5x - 3$

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

63.  $4x^2 - 4x + 3$

64.  $4x^2 + 12x - 5$

25.  $6x^2 + 7x - 3$

26.   $21x^2 + 2x - 3$

65.  $2x^2 + 18x - 90$

66.  $3x^2 + 11x + 10$

27.  $3x^2 - 5x + 4$

28.  $6x^2 - 5x + 3$

67.  $3x^2 + x - 10$

68.  $3x^2 - 17x + 10$

29.  $2x^2 - 7x + 6$

30.  $3a^2 - 14a + 15$

69.  $10x^2 - 3xy - y^2$

70.  $8x^2 - 2xy - y^2$

31.  $5b^2 - 13b + 6$

32.  $7y^2 + 16y - 15$

71.  $42a^2 - 13ab + b^2$

72.  $10a^2 - 27ab + 5b^2$

33.  $4y^2 - 11y - 3$

34.  $35x^2 - 2x - 1$

Complete the factoring.

35.   $3x^2 + 2x + 1$

36.  $6x^2 - 4x - 5$

73.  $3x^2 + 7x + 2 = (x + 2)(\quad)$

37.  $8x^2 - 2x - 1$

38.   $8x^2 - 10x - 3$

74.  $2x^2 - x - 15 = (x - 3)(\quad)$

39.  $9t^2 - 9t + 2$

40.  $9t^2 + 5t - 4$

75.  $5x^2 + 11x + 2 = (5x + 1)(\quad)$

41.  $15x^2 + 13x + 2$

42.  $15x^2 - 7x - 2$

76.  $4x^2 - 19x - 5 = (4x + 1)(\quad)$

Use the ac method to factor each trinomial. See Example 2.

43.  $4a^2 + 16ab + 15b^2$

44.  $10x^2 + 17xy + 3y^2$

77.  $6a^2 - 17a + 5 = (3a - 1)(\quad)$

45.  $6m^2 - 7mn - 5n^2$

46.  $3a^2 + 2ab - 21b^2$

78.  $4b^2 - 16b + 15 = (2b - 5)(\quad)$

47.  $3x^2 - 8xy + 5y^2$

48.  $3m^2 - 13mn + 12n^2$

### 3 Factoring Completely

Factor each polynomial completely. See Examples 5 and 6.

79.  $81w^3 - w$

80.  $81w^3 - w^2$

81.  $4w^2 + 2w - 30$

 82.  $2x^2 - 28x + 98$

83.  $27 + 12x^2 + 36x$

84.  $24y + 12y^2 + 12$

85.  $6w^2 - 11w - 35$

86.  $8y^2 - 14y - 15$

87.  $3x^2z - 3zx - 18z$

 88.  $a^2b + 2ab - 15b$

89.  $9x^3 - 21x^2 + 18x$

90.  $-8x^3 + 4x^2 - 2x$

91.  $a^2 + 2ab - 15b^2$

92.  $a^2b^2 - 2a^2b - 15a^2$

93.  $2x^2y^2 + xy^2 + 3y^2$

94.  $18x^2 - 6x + 6$

95.  $-6t^3 - t^2 + 2t$

96.  $-36t^2 - 6t + 12$

97.  $12t^4 - 2t^3 - 4t^2$

98.  $12t^3 + 14t^2 + 4t$

### 2 Trial and Error

Factor each trinomial using trial and error. See Examples 3 and 4.

49.  $5a^2 + 6a + 1$

50.  $7b^2 + 8b + 1$

93.  $2x^2y^2 + xy^2 + 3y^2$

51.  $6x^2 + 5x + 1$

52.  $15y^2 + 8y + 1$

95.  $-6t^3 - t^2 + 2t$

53.  $5a^2 + 11a + 2$

54.  $3y^2 + 10y + 7$

97.  $12t^4 - 2t^3 - 4t^2$



55.   $4w^2 + 8w + 3$

56.  $6z^2 + 13z + 5$

99.  $4x^2y - 8xy^2 + 3y^3$

100.  $9x^2 + 24xy - 9y^2$

101.  $-4w^2 + 7w - 3$

102.  $-30w^2 + w + 1$