Factor the polynomial.

1. $x^4 + x^2$ [A] $x^2(x^2 + 1)$ [B] $x^2(x^2 + 2x)$ [C] $x^2(1 + 2x)$ [D] $x^2(1 + x)$

2. $x^6 - x^8$ [A] $x^6(1 - 2x)$ [B] $x^6(1 - x^2)$ [C] $x^6(x^2 - 2x)$ [D] $x^6(x^2 - x)$

3. $x^7 - x^3$ [A] $x^3(x^4 - 1)$ [B] $x^3(1 - x)$ [C] $x^3(x^4 - 4x)$ [D] $x^3(1 - 4x)$

4. $x^5 - x^9$ [A] $x^5(x^4 - 4x)$ [B] $x^5(1 - x^4)$ [C] $x^5(1 - 4x)$ [D] $x^5(x^4 - x)$

5. $x^3 - x^8$ [A] $x^3(1 - x^5)$ [B] $x^3(x^5 - x)$ [C] $x^3(1 - 5x)$ [D] $x^3(x^5 - 5x)$

6. $x^2 - x^9$ [A] $x^2(1 - 7x)$ [B] $x^2(x^7 - x)$ [C] $x^2(1 - x^7)$ [D] $x^2(x^7 - 7x)$

7. $x^2 - x^4$ [A] $x^2(x^2 - 2x)$ [B] $x^2(x^2 - x)$ [C] $x^2(1 - 2x)$ [D] $x^2(1 - x^2)$

8. $x^3 + x^7$ [A] $x^3(1 + x^4)$ [B] $x^3(x^4 + 4x)$ [C] $x^3(1 + 4x)$ [D] $x^3(x^4 + x)$

9. $x^7 - x^5$ [A] $x^5(1 - x)$ [B] $x^5(x^2 - 2x)$ [C] $x^5(x^2 - 1)$ [D] $x^5(1 - 2x)$

10. $12x^2 + 15x$ [A] $x(12x + 15)$ [B] $27x^3$ [C] $12x + 15$ [D] $3x(4x + 5)$

11. $30x^2 - 25x$ [A] $x(30x - 25)$ [B] $30x - 25$ [C] $5x$ [D] $5x(6x - 5)$

12. $14x^2 + 8x$ [A] $x(14x + 8)$ [B] $14x + 8$ [C] $2x(7x + 4)$ [D] $22x^3$

13. $16x^2 - 6x$ [A] $10x$ [B] $x(16x - 6)$ [C] $2x(8x - 3)$ [D] $16x - 6$

14. $27x^2 + 24x$ [A] $51x^3$ [B] $x(27x + 24)$ [C] $3x(9x + 8)$ [D] $27x + 24$

15. $20x^2 + 4x$ [A] $x(20x + 4)$ [B] $20x + 4$ [C] $24x^3$ [D] $4x(5x + 1)$

Factor the polynomial.

16. $15x^2 + 30x$ [A] $15x(x + 2)$ [B] $45x^3$ [C] $15x + 30$ [D] $x(15x + 30)$

17. $12x^2 + 6x$ [A] $18x^3$ [B] $x(12x + 6)$ [C] $12x + 6$ [D] $6x(2x + 1)$

18. $28x^2 - 32x$ [A] $x(28x - 32)$ [B] $-4x$ [C] $28x - 32$ [D] $4x(7x - 8)$

19. $10x^2 + 35x$ [A] $5x(2x + 7)$ [B] $10x + 35$ [C] $45x^3$ [D] $x(10x + 35)$

20. $35x^3 - 25x^2 + 20x$

21. $21x^3 - 49x^2 + 14x$

22. $20x^3 - 12x^2 + 24x$

23. $15x^3 - 18x^2 + 21x$

24. $36x^3 - 42x^2 + 30x$

25. $14x^3 - 4x^2 + 6x$

26. $12x^3 - 30x^2 + 42x$

27. $21x^3 - 15x^2 + 6x$

28. $21x^3 - 28x^2 + 21x$

29. $16x^3 - 28x^2 + 20x$

30. $40x - 15$

Factor the polynomial.

31. $8x + 24$

32. $6x - 16$

33. $15x + 21$

34. $45x + 5$

Factor the polynomial completely.

35. $w^2 - 8w + 16$

[A] $(w + 4)^2$ [B] $(w - 4)^2$ [C] $(w - 4)(w + 4)$ [D] $(w - 16)(w + 1)$

36. $r^2 + 4r + 4$

[A] $(r - 2)^2$ [B] $(r + 2)^2$ [C] $(r + 2)(r - 2)$ [D] $(r - 4)(r + 1)$

37. $k^2 + 10k + 25$

[A] $(k - 5)^2$ [B] $(k + 5)(k - 5)$ [C] $(k + 5)^2$ [D] $(k - 25)(k + 1)$

38. $f^2 - 12f + 36$

[A] $(f - 6)^2$ [B] $(f - 6)(f + 6)$ [C] $(f + 6)^2$ [D] $(f - 36)(f + 1)$

39. $b^2 + 6b + 9$

[A] $(b + 3)(b - 3)$ [B] $(b - 3)^2$ [C] $(b - 9)(b + 1)$ [D] $(b + 3)^2$

40. $n^2 + 4n + 4$

[A] $(n + 2)(n - 2)$ [B] $(n - 2)^2$ [C] $(n + 2)^2$ [D] $(n - 4)(n + 1)$

Factor the polynomial completely.

41. $j^2 + 10j + 25$

[A] $(j - 25)(j + 1)$ [B] $(j - 5)^2$ [C] $(j + 5)(j - 5)$ [D] $(j + 5)^2$

42. $c^2 + 6c + 9$ [A] $(c - 3)^2$ [B] $(c + 3)^2$ [C] $(c + 3)(c - 3)$ [D] $(c - 9)(c + 1)$

43. $y^2 + 12y + 36$

[A] $(y - 36)(y + 1)$ [B] $(y - 6)^2$ [C] $(y + 6)^2$ [D] $(y + 6)(y - 6)$

44. $m^2 - 8m + 16$

[A] $(m - 4)(m + 4)$ [B] $(m - 16)(m + 1)$ [C] $(m - 4)^2$ [D] $(m + 4)^2$

45. $100x^2 - 180xy + 81y^2$

[A] $(10x + 9y)^2$ [B] $(10x - 9y)(10x + 9y)$

[C] $(100x - 9y)(x + 9y)$ [D] $(10x - 9y)^2$

46. $64x^2 - 80xy + 25y^2$

[A] $(64x - 5y)(x + 5y)$ [B] $(8x + 5y)^2$ [C] $(8x - 5y)(8x + 5y)$ [D] $(8x - 5y)^2$

47. $81x^2 + 36xy + 4y^2$

[A] $(9x + 2y)(9x - 2y)$ [B] $(9x + 2y)^2$ [C] $(81x + 2y)(x - 2y)$ [D] $(9x - 2y)^2$

48. $25x^2 + 40xy + 16y^2$

[A] $(25x + 4y)(x - 4y)$ [B] $(5x + 4y)(5x - 4y)$ [C] $(5x + 4y)^2$ [D] $(5x - 4y)^2$

49. $16x^2 + 24xy + 9y^2$

[A] $(4x + 3y)(4x - 3y)$ [B] $(16x + 3y)(x - 3y)$ [C] $(4x - 3y)^2$ [D] $(4x + 3y)^2$

Factor the polynomial completely.

50. $64x^2 + 112xy + 49y^2$

[A] $(8x - 7y)^2$ [B] $(8x + 7y)^2$ [C] $(64x + 7y)(x - 7y)$ [D] $(8x + 7y)(8x - 7y)$

51. $49x^2 + 112xy + 64y^2$

[A] $(7x + 8y)(7x - 8y)$ [B] $(7x + 8y)^2$ [C] $(7x - 8y)^2$ [D] $(49x + 8y)(x - 8y)$

52. $9x^2 + 12xy + 4y^2$

[A] $(3x + 2y)^2$ [B] $(9x + 2y)(x - 2y)$ [C] $(3x - 2y)^2$ [D] $(3x + 2y)(3x - 2y)$

53. $4q^2 - 20qr + 25r^2$

54. $m^2 - 4mn + 4n^2$

55. $16p^2 - 56pq + 49q^2$

56. $25s^2 - 10st + t^2$

57. $9t^2 - 30tu + 25u^2$

58. $a^2 - 4ab + 4b^2$

59. $25d^2 - 30de + 9e^2$

60. $25e^2 - 70ef + 49f^2$

61. $x^2 - 2xy + y^2$

62. $25u^2 - 40uv + 16v^2$

Factor the polynomial completely.

63. $25x^2 - 70x + 49$

64. $4x^2 + 12x + 9$

65. $9x^2 + 48x + 64$

66. $25x^2 - 10x + 1$

67. $4x^2 + 36x + 81$

68. $9x^2 + 30x + 25$

69. $25x^2 + 60x + 36$

70. $16x^2 + 56x + 49$

71. $25x^2 - 80x + 64$

72. $16x^2 + 8x + 1$

73. $x^2 - 1$

[A] $(x+1)(x+1)$ [B] $(x+1)(x+2)$ [C] $(x+1)(x-1)$ [D] $(x-1)(x-1)$

74. $x^2 - 121$

[A] $(x+11)(x-9)$ [B] $(x+11)(x+11)$

[C] $(x-11)(x-11)$ [D] $(x+11)(x-11)$

Factor the polynomial completely.

75. $x^2 - 144$

[A] $(x+12)(x+12)$ [B] $(x+12)(x-14)$

[C] $(x+12)(x-12)$ [D] $(x-12)(x-12)$

76. $x^2 - 49$

[A] $(x+7)(x+7)$ [B] $(x+7)(x-5)$ [C] $(x+7)(x-7)$ [D] $(x-7)(x-7)$

77. $x^2 - 16$

[A] $(x-4)(x-4)$ [B] $(x+4)(x-4)$ [C] $(x+4)(x-6)$ [D] $(x+4)(x+4)$

78. $x^2 - 64$

[A] $(x-8)(x-8)$ [B] $(x+8)(x-8)$ [C] $(x+8)(x+8)$ [D] $(x+8)(x-6)$

79. $x^2 - 4$

[A] $(x+2)(x-4)$ [B] $(x+2)(x+2)$ [C] $(x+2)(x-2)$ [D] $(x-2)(x-2)$

80. $x^2 - 169$

[A] $(x-13)(x-13)$ [B] $(x+13)(x+13)$

[C] $(x+13)(x-11)$ [D] $(x+13)(x-13)$

81. $x^2 - 81$

[A] $(x+9)(x-11)$ [B] $(x+9)(x-9)$ [C] $(x+9)(x+9)$ [D] $(x-9)(x-9)$

82. $x^2 - 25$

[A] $(x+5)(x+5)$ [B] $(x+5)(x-3)$ [C] $(x-5)(x-5)$ [D] $(x+5)(x-5)$

83. $36x^2 - 25y^2$

[A] $(6x+5y)^2$ [B] $(6x+5y)(6x-5y)$ [C] $(6x-5y)^2$ [D] $(6x+5)(6x-5)$

Factor the polynomial completely.

84. $25x^2 - 64y^2$

[A] $(5x + 8y)^2$ [B] $(5x + 8y)(5x - 8y)$ [C] $(5x - 8y)^2$ [D] $(5x + 8)(5x - 8)$

85. $16x^2 - 9y^2$

[A] $(4x + 3)(4x - 3)$ [B] $(4x + 3y)(4x - 3y)$ [C] $(4x - 3y)^2$ [D] $(4x + 3y)^2$

86. $81x^2 - 16y^2$

[A] $(9x - 4y)^2$ [B] $(9x + 4y)(9x - 4y)$ [C] $(9x + 4y)^2$ [D] $(9x + 4)(9x - 4)$

87. $64x^2 - 49y^2$

[A] $(8x + 7)(8x - 7)$ [B] $(8x + 7y)^2$ [C] $(8x + 7y)(8x - 7y)$ [D] $(8x - 7y)^2$

88. $49x^2 - 25y^2$

[A] $(7x + 5y)^2$ [B] $(7x - 5y)^2$ [C] $(7x + 5)(7x - 5)$ [D] $(7x + 5y)(7x - 5y)$

89. $4x^2 - 81y^2$

[A] $(2x + 9y)^2$ [B] $(2x + 9)(2x - 9)$ [C] $(2x + 9y)(2x - 9y)$ [D] $(2x - 9y)^2$

90. $25x^2 - 9y^2$

[A] $(5x + 3)(5x - 3)$ [B] $(5x + 3y)(5x - 3y)$ [C] $(5x + 3y)^2$ [D] $(5x - 3y)^2$

91. $81x^2 - 49y^2$

[A] $(9x + 7)(9x - 7)$ [B] $(9x + 7y)^2$ [C] $(9x + 7y)(9x - 7y)$ [D] $(9x - 7y)^2$

92. $64x^2 - 25y^2$

[A] $(8x + 5)(8x - 5)$ [B] $(8x - 5y)^2$ [C] $(8x + 5y)^2$ [D] $(8x + 5y)(8x - 5y)$

93. $81x^2 - 64$

Factor the polynomial completely.

94. $4x^2 - 25$

95. $49x^2 - 9$

96. $25x^2 - 16$

97. $100x^2 - 49$

98. $36x^2 - 25$

99. $4x^2 - 9$

100. $49x^2 - 36$

101. $9x^2 - 16$

102. $25x^2 - 49$