

Factoring

Trinomials of the form $x^2 \pm bx \pm c$

1. $x^2 + 3x + 2 = (x + 2)(x + 1)$

2. $x^2 + 5x + 6 = (x + 3)(x + 2)$

3. $x^2 + 7x + 12 = (x + 3)(x + 4)$

4. $y^2 + 5y + 4 = (y + 4)(y + 1)$

5. $y^2 + 8y + 12 = (y + 6)(y + 2)$

6. $y^2 + 9y + 18 = (y + 6)(y + 3)$

7. $z^2 + 11z + 30 = (z + 6)(z + 5)$

8. $z^2 + 12z + 20 = (z + 10)(z + 2)$

9. $z^2 + 15z + 56 = (z + 8)(z + 7)$

10. $a^2 + 14a + 48 = (a + 6)(a + 8)$

11. $a^2 + 20a + 84 = (a + 14)(a + 6)$

12. $a^2 + 24a + 80 = (a + 20)(a + 4)$

13. $x^2 - 6x + 9 = (x - 3)(x - 3)$

14. $x^2 - 7x + 10 = (x - 5)(x - 2)$

15. $x^2 - 9x + 20 = (x - 5)(x - 4)$

16. $y^2 - 10y + 24 = (y - 6)(y - 4)$

17. $y^2 - 13y + 42 = (y - 6)(y - 7)$

18. $y^2 - 15y + 14 = (y - 14)(y - 1)$

19. $z^2 - 16z + 28 = (z - 14)(z - 2)$

20. $z^2 - 18z + 81 = (z - 9)(z - 9)$

21. $z^2 - 23z + 76 = (z - 19)(z - 4)$

22. $b^2 - 30b + 125 = (b - 25)(b - 5)$

23. $b^2 - 34b + 145 = (b - 29)(b - 5)$

24. $b^2 - 42b + 360 = (b - 60)(b - 6)$

25. $x^2 + x - 6 = (x + 3)(x - 2)$

26. $x^2 + x - 12 = (x + 4)(x - 3)$

27. $x^2 + x - 30 = (x + 6)(x - 5)$

28. $y^2 + 2y - 15 = (x + 5)(x - 3)$

29. $y^2 + 2y - 35 = (y + 7)(y - 5)$

30. $y^2 + 3y - 40 = (y + 8)(y - 5)$

31. $z^2 + 4z - 32 = (z + 8)(z - 4)$

32. $z^2 + 4z - 21 = (z + 7)(z - 3)$

33. $z^2 + 5z - 66 = (z + 11)(z - 6)$

34. $c^2 + 7c - 18 = (c + 9)(c - 2)$

35. $c^2 + 11c - 42 = (c + 14)(c - 3)$

36. $c^2 + 9c - 220 = (c + 20)(c - 11)$

37. $x^2 - 3x - 88 = (x - 11)(x + 8)$

38. $x^2 - 5x - 36 = (x - 9)(x + 4)$

39. $x^2 - 4x - 77 = (x - 11)(x + 4)$

40. $y^2 - 2y - 63 = (y - 9)(y + 7)$

41. $y^2 - 3y - 40 = (y - 8)(y + 5)$

42. $y^2 - y - 72 = (y - 9)(y + 8)$

43. $z^2 - z - 132 = (z - 12)(z + 11)$

44. $z^2 - 7z - 144 = (z - 16)(z + 9)$

45. $z^2 - 8z - 20 = (z - 10)(z + 2)$

46. $d^2 - 11d - 60 = (d - 15)(d + 4)$

47. $d^2 - 5d - 300 = (d - 20)(d + 15)$

48. $d^2 - 3d - 180 = (d - 15)(d + 12)$

49. $49 + 14x + x^2 = x^2 + 14x + 49 = (x + 7)(x + 7)$

50. $169 + 26y + y^2 = y^2 + 26y + 169 = (y + 13)(y + 13)$

51. $45 - 14y + y^2 = y^2 - 14y + 45 = (y - 9)(y - 5)$

52. $63 - 16z + z^2 = z^2 - 16z + 63 = (z - 9)(z - 7)$

53. $80 - 2y - y^2 = -1(y^2 + 2y - 80) = -1(y + 10)(y - 8)$

54. $36 - 9y - y^2 = -1(y^2 + 9y - 36) = -1(y + 12)(y - 3)$

55. $54 + 3y - y^2 = -1(y^2 - 3y - 54) = -1(y - 9)(y + 6)$

56. $100 + 21z - z^2 = -1(z^2 - 21z - 100) = -1(z - 25)(z + 4)$

57. $60 + 11y - y^2 = -1(y^2 - 11y - 60) = -1(y + 15)(y - 4)$

58. $x^4 + 6x^2 + 8 = (x^2 + 4)(x^2 + 2)$

59. $x^4 + 9x^2 + 8 = (x^2 + 8)(x^2 + 1)$

60. $x^4 + 12x^2 + 27 = (x^2 + 9)(x^2 + 3)$

61. $y^6 + 15y^3 + 50 = (y^3 + 10)(y^3 + 5)$

62. $y^6 + 16y^3 + 48 = (y^3 + 12)(y^3 + 4)$

63. $z^8 + 20z^4 + 75 = (z^4 + 15)(z^4 + 5)$

64. $x^4 - 10x^2 + 24 = (x^2 - 6)(x^2 - 4) = (x^2 - 6)(x + 2)(x - 2)$

65. $x^4 - 19x^2 + 90 = (x^2 - 10)(x^2 - 9) = (x^2 - 10)(x + 3)(x - 3)$

$$66. y^6 - 11y^3 + 18 = (y^3 - 9)(y^3 - 2)$$

$$67. y^6 - 17y^3 + 70 = (y^3 - 10)(y^3 - 7)$$

$$68. z^8 - 16z^4 + 64 = (z^4 - 8)(z^4 - 8)$$

$$69. z^{10} - 21z^5 + 90 = (z^5 - 15)(z^5 - 6)$$

$$70. x^4 + x^2 - 56 = (x^2 + 8)(x^2 - 7)$$

$$71. x^4 + 2x^2 - 63 = (x^2 + 9)(x^2 - 7)$$

$$72. y^6 + 5y^3 - 50 = (y^3 + 10)(y^3 - 5)$$

$$73. y^6 + 2y^3 - 99 = (y^3 + 11)(y^3 - 9)$$

$$74. z^8 + 7z^4 - 44 = (z^4 + 11)(z^4 - 4) = (z^4 + 11)(z^2 + 2)(z^2 - 2)$$

$$75. z^{10} + 3z^5 - 88 = (z^5 + 11)(z^5 - 8)$$

$$76. x^4 - x^2 - 110 = (x^2 - 11)(x^2 + 10)$$

$$77. x^4 - x^2 - 72 = (x^2 - 9)(x^2 + 8) = (x + 3)(x - 3)(x^2 + 8)$$

$$78. y^6 - 3y^3 - 40 = (y^3 - 8)(y^3 + 5)$$

$$79. y^6 - 2y^3 - 143 = (y^3 - 13)(y^3 + 11)$$

$$80. z^8 - 3z^4 - 108 = (z^4 - 12)(z^4 + 9)$$

$$81. z^{10} - 4z^5 - 77 = (z^5 - 11)(z^5 + 7)$$

$$82. x^2y^2 + 5xy + 6 = (xy + 3)(xy + 2)$$

$$83. x^2 + 6xy + 5y^2 = (x + 5y)(x + y)$$

$$84. x^4 + 12x^2y + 32y^2 = (x^2 + 8y)(x^2 + 4y)$$

$$85. a^2b^2 - 8abc + 12c^2 = (ab - 6c)(ac - 2c)$$

$$86. d^2 - 12de + 27e^2 = (d - 9e)(d - 3e)$$

$$87. x^2 + 3xy - 28y^2 = (x + 7y)(x - 4y)$$

$$88. x^2 + 7xy - 18y^2 = (x + 9y)(x - 2y)$$

$$89. x^2 - 2xy - 120y^2 = (x - 12y)(x + 10y)$$

$$90. x^2 - 6xy - 55y^2 = (x - 11y)(x + 5y)$$

$$91. x^4 + 12x^2y + 32y^2 = (x^2 + 8y)(x^2 + 4y)$$

$$92. x^4 - 14x^2y^2 + 24y^4 = (x^2 - 12y^2)(x^2 - 2y^2)$$

$$93. x^6y^4 - 5x^3y^2 - 36 = (x^3y^2 - 9)(x^3y^2 + 4)$$

$$94. z^8 - 7z^4w^2 - 18w^4 = (z^4 - 9w^2)(z^4 + 2w^2) = (z^2 + 3w)(z^2 - 3w)(z^4 + 2w^2)$$

$$95. z^6 + 5z^3y^4 - 24y^8 = (z^3 + 8y^4)(z^3 - 3y^4)$$

$$96. x^{12}y^6 + 14x^6y^3 - 72 = (x^6y^3 + 18)(x^6y^3 - 4)$$

$$97. (x - 1)^2 + 7(x - 1) + 12 = [(x - 1) + 3][(x - 1) + 4]$$

98. $(x-2)^2 - 7(x-2) + 12 = [(x-2)-4][(x-2)-3]$
99. $(2x-3)^2 + 4(2x-3) - 12 = [(2x-3)+6][(2x-3)-2]$
100. $(2x+3)^2 - (2x+3) - 56 = [(2x+3)-8][(2x+3)+7]$
101. $5x^2 + 15x + 10 = 5(x^2 + 3x + 2) = 5(x+2)(x+1)$
102. $6x^2 + 30x + 36 = 6(x^2 + 5x + 6) = 6(x+3)(x+2)$
103. $x^3 + 7x^2 + 12x = x(x^2 + 7x + 12) = x(x+3)(x+4)$
104. $-2y^2 - 10y - 8 = -2(y^2 + 5y + 4) = -2(y+4)(y+1)$
105. $7y^2 + 56y + 84 = 7(y^2 + 8y + 12) = 7(y+6)(y+2)$
106. $2y^2 + 18y + 36 = 2(y^2 + 9y + 18) = 2(y+6)(y+3)$
107. $5x^2 - 35x + 50 = 5(x^2 - 7x + 10) = 5(x-5)(x-2)$
108. $3x^2 - 27x + 60 = 3(x^2 - 9x + 20) = 3(x-5)(x-4)$
109. $y^4 - 10y^3 + 24y^2 = y^2(y^2 - 10y + 24) = y^2(y-6)(y-4)$
110. $8y^2 - 104y + 336 = 8(y^2 - 13y + 42) = 8(y-7)(y-6)$
111. $-4c^2 - 44c + 168 = -4(c^2 + 11c - 42) = -4(c+14)(c-3)$
112. $4c^2 + 36c - 880 = 4(c^2 + 9c - 220) = 4(c+20)(c-11)$
113. $7x^2 - 21x - 616 = 7(x^2 - 3x - 88) = 7(x-11)(x+8)$
114. $-2x^2 + 10x + 72 = -2(x^2 - 5x - 36) = -2(x-9)(x+4)$
115. $6x^2 - 24x - 462 = 6(x^2 - 4x - 77) = 6(x-11)(x+7)$
116. $72 - 18y - 2y^2 = -2(y^2 + 9y - 36) = -2(y+12)(y-3)$

$$117. 162 + 9y - 3y^2 = -3(y^2 - 3y - 54) = -3(y - 9)(y + 6)$$

$$118. x^5 + 9x^3 + 8x = x(x^4 + 9x^2 + 8) = x(x^2 + 8)(x^2 + 1)$$

$$119. 2y^7 - 22y^4 + 36y = 2y(y^6 - 11y^3 + 18) = 2y(y^3 - 9)(y^3 - 2)$$

$$120. 3x^3y^3 + 15x^2y^2 + 18xy = 3xy(x^2y^2 + 5xy + 6) = 3xy(xy + 3)(xy + 2)$$