

Factor completely: (Hint: look for GCF 1st)

1. $3t^2 - 48 = 3(t^2 - 16) = 3(t-4)(t+4)$

2. $2y^2 + 6y + 4 = 2(y^2 + 3y + 2) = 2(y+1)(y+2)$

3. $-3a^3 + 3ab^2 - 3a(a^2 - b^2) = -3a(a-b)(a+b)$

4. $2x^2 + 3x - 20 = (2x-5)(x+4)$

5. $4x^2 + 25x - 21 = (4x-3)(x+7)$

6. $20x^2 - 29x - 36 = (4x-9)(5x+4)$

7. $ar^2 - 3ar - 4a = a(r-4)(r+1)$

8. $7k^2 - 21k - 28 = (7k+7)(k-4) = 7(k+1)(k-4)$

9. $4a^2p^3 + 20a^2p^2 + 16a^2p = 4a^2p(p+4)(p+1)$

10. $12c^2 - 24c - 15 = 3(2c+1)(2c-5)$

11. $288y^2 - 98x^4 = 2(12y-7x^2)(12y+7x^2)$

12. $-5 - 28k + 12k^2 = (-5+2k)(1+6k)$

13. $6y^2 - 28y = 2y(3y-14)$

14. $6a^3b - 26a^2b^2 - 20ab^3 = 2ab(3a+2)(a-5)$

15. $75a^3b + 90a^2b + 27ab = 3ab(5a+3)^2$

16. $m^4 - n^4 = (m^2 - n^2)(m^2 + n^2) = (m-n)(m+n)(m^2 + n^2)$

Key

17. $64 - 27x^3 = (4 - 3x)(16 + 12x + 9x^2)$

18. $216 + 125y^3 = (5x^2 + 6)(25x^4 - 30x^2 + 36)$

19. $8a^6 - 343 = (2a^2 - 7)(4a^4 + 14a^2 + 49)$

20. $15x^2 + 20x - 6x - 8 = (3x + 4)(5x - 2)$

21. $b(2ab + 5b) - (6a - 15)b(2a + 5) - 3(2a + 5) = (2a + 5)(b - 3)$

22. $t^2 - 63 + 2t = (t + 9)(t - 7)$

23. $6a^2 - 10 - 11a = (2x - 5)(3x + 2)$

24. $20x^2 + 11xy - 3y^2 = (4x + 3y)(5x - y)$

25. $40a^3b - 30a^2b^2 - 25ab^3 = 5ab(8a^2 - 6ab - 5b^2) = 5ab(2a + b)(4a - 5b)$

26. $5x^2 - 320 = 5(x^2 - 64) = 5(x - 8)(x + 8)$

27. $4x^4 - 81x^2 = x^2(4x^2 - 81) = x^2(2x - 9)(2x + 9)$

28. $12x^4 + 60x^3 + 75x^2 = 3x^2(4x^2 + 20x + 25) = 3x^2(2x + 5)^2$

29. $-10a^3b^2 - 15a^2b^4 = -5a^2b^2(2a + 3b^2)$

30. $(7x - 3)^2 - 9y^2 = [(7x - 3) - 3y][(7x - 3) + 3y]$

31. $(3x^3 + 6x^2) - 27x - 54 = 3x^2(x + 2) - 27(x + 2) = 3(x + 2)(x - 3)(x + 3)$

32. $81 - x^4 = (9 - x^2)(9 + x^2) = (3 - x)(3 + x)(9 + x^2)$