

Factoring:

Common Factors

1. $3x - 9y = 3(x - 3y)$

2. $8a + 12b = 4(2a + 3b)$

3. $6ax + 9ay = 3a(2x + 3y)$

4. $7x - 49 = 7(x - 7)$

5. $12xy + 15xz = 3x(4y + 5z)$

6. $27abc - 63bcd = 9bc(3a - 7d)$

7. $12x + 24y - 36z = 12(x + 2y - 3z)$

8. $54x + 72y - 108z = 18(3x + 4y - 6z)$

9. $5a^2 - 15ab = 5a(a - 3b)$

10. $3x^2y - 5xy^2 = xy(3x - 5y)$

11. $4a^3 + 6a^2y^2 = 2a^2(2a + 3y^2)$

12. $\frac{2}{3}x^2 - \frac{4}{3}x = \frac{2}{3}x(x - 2)$

13. $\frac{4}{3}\pi r^3 - \frac{2}{3}\pi r^2 = \frac{2}{3}\pi r^2(2r - 1)$

14. $\frac{5}{6}x^2 - \frac{1}{2}ax = \frac{5}{6}x^2 - \frac{3}{6}ax = \frac{1}{6}x(5x - 3a)$

15. $14at^2 + 10a^2t = 2at(7t + 5a)$

16. $6a^2x^2y^4 - 3ax^5y^2 = 3ax^2y^2(2ay^2 - x^3)$

17. $m^2x^2 + mx^3 = mx^2(m + x)$

18. $3x^3 - 12x^2 + 15x = 3x(x^2 - 4x + 5)$

19. $6a^2x + 8axy - 14az = 2a(3ax + 4xy - 7z)$

20. $5x^2 - 10xy + 15x = 5x(x - 2y + 3)$

21. $3m^2 + 12mn + 6m = 3m(m + 4n + 2)$

22. $24x^2y^2 - 6y + 12xy = 6y(4x^2y - 1 + 2x)$

23. $2x^2y^2z^2 - x^3y^3z + xy^2z^3 = xy^2z(2xz - x^2y + z^2)$

24. $24ab^2x - 21ax + 9x^3 = 3x(8ab^2 - 7x + 3x^2)$

25. $121a^3x + 66a^2x - 88ax^2 = 11ax(11a^2 + 6a - 8x)$

26. $78m^2n + 52m^2n^3 - 39m^2 = 13m^2(6n + 4n^3 - 3)$

$$27. 4(x - y) + a(x - y) = (x - y)(4 + a)$$

$$28. 5x(2a - b) - 3(2a - b) = (2a - b)(5x - 3)$$

$$29. 3(4x - 5y)^3 - a(4x - 5y)^2 = (4x - 5y)^2 [3(4x - 5y) - a]$$

$$30. \frac{2}{3}x^2y - \frac{8}{9}x^2y^2 + \frac{4}{3}x^4y^3 = \frac{6}{9}x^2y - \frac{8}{9}x^2y^2 + \frac{12}{9}x^4y^3 = \frac{2}{9}x^2y(3 - 4y + 6x^2y^2)$$

$$31. \frac{3}{4}x^2 + \frac{2}{3}x - \frac{5}{12}x^3 = \frac{9}{12}x^2 + \frac{8}{12}x - \frac{5}{12}x^3 = \frac{1}{12}x(9x + 8 - 5x^2)$$

$$32. x^3 - x^5y^6 + 3x^7y^2 - 4x^4y^3 = x^3(1 - x^2y^6 + 3x^4y^2 - 4xy^3)$$

$$33. 3x^3y^2z^3 - 12xyz^2 + x^2yz^2 + 4x^2y^2z^2 = xyz^2(3x^2yz - 12 + x + 4xy)$$

$$34. \begin{aligned} &12(x^2 - 3x + 5)^3 + 20(x^2 - 3x + 5)^2 - 36(x^2 - 3x + 5)^4 = \\ &4(x^2 - 3x + 5)^2 [3(x^2 - 3x + 5) + 5 - 9(x^2 - 3x + 5)^2] \end{aligned}$$