

## Laws of Exponents

$$1. 3^2 \cdot 3^5 = 3^7$$

$$2. 7^3 \cdot 7^4 = 7^7$$

$$3. 11^4 \cdot 11^7 = 11^{11}$$

$$4. 2^5 \cdot 2^3 \cdot 2^4 = 2^{12}$$

$$5. 4^6 \cdot 4^3 \cdot 4^5 = 4^{14}$$

$$6. 7 \cdot 7^3 \cdot 7^5 = 7^9$$

$$7. 3^2 \cdot 2^3 = 3^2 \cdot 2^3$$

$$8. 5^3 \cdot 2^4 \cdot 5^4 \cdot 2^2 = 2^6 \cdot 5^7$$

$$9. 4 \cdot 3^5 \cdot 4^3 \cdot 3 = 3^6 \cdot 4^4$$

$$10. x^3 \cdot x^2 = x^5$$

$$11. x^6 \cdot x^4 = x^{10}$$

$$12. x^3 \cdot x^4 \cdot x^2 = x^9$$

$$13. x^3 \cdot y^2 = x^3 \cdot y^2$$

$$14. x^4 y^5 \cdot x^2 y^3 = x^6 y^8$$

$$15. x^4 y^2 z^3 \cdot x^2 y^3 z^5 = x^6 y^5 z^8$$

$$16. 3x \cdot 5x = 15x^2$$

$$17. 4x^2 \cdot 5x^3 = 20x^5$$

$$18. 3x^2 y^3 \cdot 5x^4 y^2 = 15x^6 y^5$$

$$19. 3^2 x \cdot 3x = 3^3 x^2$$

$$20. 4^3 x^2 \cdot 4^2 x^3 = 4^5 x^5$$

$$21. 5^3 x^4 y^2 \cdot 5^2 x^2 y^6 = 5^5 x^6 y^8$$

$$22. 3^2 x \cdot 4x = 3^2 \cdot 4 \cdot x^2$$

$$23. 4^2 x^3 \cdot 5x^2 = 4^2 \cdot 5 \cdot x^5$$

$$24. 3^2 x^5 y^2 \cdot 4^2 x^5 y^3 = 3^2 \cdot 4^2 \cdot x^{10} y^5$$

$$25. (3)^2 = 3^2$$

$$26. (5^2)^3 = 5^6$$

$$27. (7^3)^4 = 7^{12}$$

$$28. (x)^4 = x^4$$

$$29. (x^3)^2 = x^6$$

$$30. (x^5)^3 = x^{15}$$

$$31. (xy)^3 = x^3 y^3$$

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

$$33. (x^4 y^2)^3 = x^{12} y^6$$

$$34. (x^5 y^3 z^4)^4 = x^{15} y^{12} z^{16}$$

$$35. (x^4 yz^2)^3 = x^{12} y^3 z^6$$

$$36. (5x^2)^3 = 5^3 x^6$$

$$37. (7x^3 y^2)^4 = 7^4 x^{12} y^8$$

$$38. (7^2 x^5 y^4)^3 = 7^6 x^{15} y^{12}$$

$$39. (5^4 x^6 y^3 z)^4 = 5^{16} x^{24} y^{12} z^4$$

$$40. (x^2)^3 \cdot (x)^4 = x^6 \cdot x^4 = x^{10}$$

$$41. (x^4)^3 \cdot (x^2)^4 = x^{12} \cdot x^8 = x^{20}$$

$$42. (x^3)^2 \cdot (x^5)^3 = x^6 \cdot x^{15} = x^{21}$$

$$43. (x^2 y^3)^2 \cdot (xy^2)^3 = x^4 y^6 \cdot x^3 y^6 = x^7 y^{12}$$

$$44. (x^4 y^3 z^2)^2 \cdot (x^2 yz)^4 = x^8 y^6 z^4 \cdot x^8 y^4 z^4 = x^{16} y^{10} z^8$$

$$45. (2x)^3 (4x^2)^2 = 2^3 x^3 4^2 x^4 = 2^3 \cdot 4^2 \cdot x^7$$

$$46. (3x^2 y)^3 \cdot (3^2 xy^3)^2 = 3^3 x^6 y^3 3^4 x^2 y^6 = 3^7 x^8 y^9$$

$$47. (5xy^3)^2 \cdot (4x^2y)^3 = 5^2 x^2 y^6 \cdot 4^3 x^6 y^3 = 5^2 \cdot 4^3 x^8 y^9$$

$$(5xy^3)^2 \cdot (4x^2y)^3 = (5xy^3)^2 \cdot (2^2 x^2 y)^3 = 5^2 x^2 y^6 \cdot 2^6 x^6 y^3 = 5^2 \cdot 2^6 x^8 y^9$$

$$48. (3x^3y^2)^4 \cdot (4x^2y^4)^2 = 3^4 x^{12} y^8 \cdot 4^2 x^4 y^8 = 3^4 \cdot 4^2 x^{16} y^{16}$$

$$(3x^3y^2)^4 \cdot (4x^2y^4)^2 = (3x^3y^2)^4 \cdot (2^2 x^2 y^4)^2 = 3^4 x^{12} y^8 \cdot 2^4 x^4 y^8 = 3^4 \cdot 2^4 x^{16} y^{16}$$

$$49. (5^2 x^3 y^4 z)^3 \cdot (5x^4 y^2 z^2)^4 = 5^6 x^9 y^{12} z^3 \cdot 5^4 x^{16} y^8 z^8 = 5^{10} x^{25} y^{20} z^{11}$$

$$50. (12x^3y^2)^4 \cdot (6xy)^2 = 12^4 x^{12} y^8 \cdot 6^2 x^2 y^2 = 12^4 \cdot 6^2 x^{14} y^{10}$$

$$(12x^3y^2)^4 \cdot (6xy)^2 = (2^2 \cdot 3x^3y^2)^4 \cdot (2 \cdot 3xy)^2 = 2^8 \cdot 3^4 x^{12} y^8 \cdot 2^2 \cdot 3^2 x^2 y^2 = 2^{10} \cdot 3^6 x^{14} y^{10}$$

$$51. (10x^4y^2z^2)^3 \cdot (20xy^4z^2)^4 = 10^3 x^{12} y^6 z^6 \cdot 20^4 x^4 y^{16} z^8 = 10^3 \cdot 20^4 x^{16} y^{22} z^{14}$$

$$(10x^4y^2z^2)^3 \cdot (20xy^4z^2)^4 = (2 \cdot 5x^4y^2z^2)^3 \cdot (2^2 \cdot 5xy^4z^2)^4 = \\ 2^3 \cdot 5^3 x^{12} y^6 z^6 \cdot 2^8 \cdot 5^4 x^4 y^{16} z^8 = 2^{11} \cdot 5^7 x^{16} y^{22} z^{14}$$