Laws of Exponents

1. $\dfrac{x^4}{x^2} = x^2$

2. $\dfrac{x^{12}}{x^9} = x^3$

3. $\dfrac{x^{14}}{x^{12}} = x^2$

4. $\dfrac{x^4}{x^6} = \dfrac{1}{x^2}$

5. $\dfrac{x^9}{x^{10}} = \dfrac{1}{x}$

6. $\dfrac{x^{11}}{x^6} = x^5$

7. $\dfrac{x^4 y^5}{x^3 y^7} = \dfrac{x}{y^2}$

8. $\dfrac{x^{15} y^{11}}{x^8 y^7} = x^7 y^4$

9. $\dfrac{x^9 y^8}{x^5 y^3} = x^4 y^5$

10. $\dfrac{x^2 y^3 z^2}{x^3 y^7 z^5} = \dfrac{1}{xy^4 z^3}$

11. $\dfrac{x^5 y^4 z^5}{x^2 y^8 z^2} = \dfrac{x^3 z^3}{y^4}$

12. $\dfrac{x^7 y^9 z^{12}}{x^6 y^3 z^5} = xy^6 z^7$

13. $\dfrac{\left(x^4\right)^2}{\left(x^2\right)^3} = \dfrac{x^8}{x^6} = x^2$

14. $\dfrac{\left(x^5\right)^3}{\left(x^6\right)^2} = \dfrac{x^{15}}{x^{12}} = x^3$

15. $\dfrac{\left(x^2 y\right)^7}{\left(x^5 y^3\right)^2} = \dfrac{x^{14} y^7}{x^{10} y^6} = x^4 y$

16. $\dfrac{\left(x^3 y^4\right)^3}{\left(x^4 y^2\right)^4} = \dfrac{x^9 y^{12}}{x^{17} y^8} = \dfrac{y^4}{x^8}$

17. $\dfrac{\left(xy^2 z^2\right)^2}{\left(x^3 y^2 z^3\right)^3} = \dfrac{x^2 y^4 z^4}{x^9 y^6 z^9} = \dfrac{1}{x^7 y^2 z^5}$

18. $\dfrac{\left(x^2 y^3 z^4\right)^3}{\left(x^2 y^4 z^2\right)^2} = \dfrac{x^6 y^9 z^{12}}{x^4 y^8 z^4} = x^2 yz^8$

19. $\dfrac{12x^3}{4x^5} = \dfrac{3}{x^2}$

20. $\dfrac{20x^4}{36x^7} = \dfrac{5}{9x^3}$

21. $\dfrac{28x^3 y^2}{24x^3 y^4} = \dfrac{7}{6y^2}$

22. $\dfrac{\left(4x^4\right)^3}{\left(5x^2\right)^2} = \dfrac{4^3 x^{12}}{5^2 x^4} = \dfrac{4^3 x^8}{5^2}$

23. $\dfrac{\left(6x^2\right)^3}{\left(9x^3\right)^3} = \dfrac{6^3 x^6}{9^3 x^9} = \dfrac{6^3}{9^3 x^3}$ or $\dfrac{\left(6x^2\right)^3}{\left(9x^3\right)^3} = \dfrac{\left(2 \cdot 3x^2\right)^3}{\left(3^2 x^3\right)^3} = \dfrac{2^3 \cdot 3^3 x^6}{3^6 x^9} = \dfrac{2^3}{3^3 x^3}$

24. $\dfrac{\left(2^3 x^5\right)^3}{\left(2^2 x^7\right)^2} = \dfrac{2^9 x^{15}}{2^4 x^{14}} = 2^5 x$

25. $\dfrac{\left(2^2 \cdot 3^4 x^2\right)^2}{\left(2^3 \cdot 3^2 x^3\right)^2} = \dfrac{2^4 \cdot 3^8 x^4}{2^6 \cdot 3^4 x^6} = \dfrac{3^4}{2^2 x^2}$

26. $\dfrac{\left(5^2 \cdot 2^4 x^4 y^3\right)^2}{\left(5 \cdot 2^2 x^3 y^2\right)^3} = \dfrac{5^4 \cdot 2^8 x^8 y^6}{5^3 \cdot 2^6 x^9 y^6} = \dfrac{5 \cdot 2^2}{x}$