

EXPONENTS

$$1. x^m \cdot x^n = x^{m+n} \quad 2. (x^m)^n = x^{m \cdot n}$$

Laws of Exponents

$$3. \frac{x^m}{x^n} = x^{m-n} \text{ if } m > n \quad \text{and} \quad \frac{x^m}{x^n} = \frac{1}{x^{n-m}} \text{ if } n > m$$

Write in simplified exponential form

1. $x^2 x^3 x^{-4}$

2. $x^{y+2} x^{2y-5}$

3. $x^{7y-3} x^{-4y+2}$

4. $x^{3i+2} x^{6i-1}$

5. $8^{3x} 4^{5x}$

6. $81^{2x-1} 15^{x+3}$

7. $x^{\sqrt{3}} x^{\sqrt{6}}$

8. $x^{2\sqrt{6y}} x^{3\sqrt{6y}}$

9. $(x^2)^4$

10. $(2x^6)^3$

11. $(x^3)^{2y+1}$

12. $(x^y - 5)^{3y+1}$

13. $(x^{2i-6})^{5i}$

14. $(4^{3xi-2})^{4i+2}$

15. $(x^{\sqrt{5}})^{\sqrt{3}}$

16. $(x^3 y^5)^{\sqrt{6}}$

17. $(x^{\sqrt{2}+5})^{\sqrt{2}-5}$

18. $x^{2/3} x^{5/3} x^{7/3}$

19. $x^{3/4} x^{5/3}$

20. $x^2 y^{5/7} x^{4/3} y^{1/2}$

21. $(x^{2/5})^{2/3}$

22. $(5x^{5/2})^{3/4}$

23. $(x^{2/3})^{3/4} (x^{3/2})^{1/4}$

24. $\frac{x^5}{x^7}$

25. $\frac{x^{4y+2}}{x^{3y-1}}$

26. $\frac{x^{4i-3}}{x^{2i+1}}$

27. $\frac{x^{y+7}}{x^{6y+2}}$

28. $\frac{6x^{3y}}{3x^{y+1}}$

29. $(3x)^3 (4x)^5$

30. $(x^4 y^2)^3 (x^{-2} y^2)^5$

31. $\frac{(x^3 y^2)^2 (x^2 y^4)^3}{(x^3 y^4)^2}$

32. $\frac{(x^{2/3} y^{1/4})^2}{(x^{3/4} y^{1/3})^3}$

33. $\frac{(x^{1/4} y^{1/3} z^{1/2})^{1/4}}{(x^{3/2} y^{3/4} z^{2/3})^{1/3}}$

34. $\frac{(x^{1/2} y^{3/4})^{1/3} (x^{1/4} y^{2/3})^{1/2}}{(x^{5/3} y^{2/3})^{1/4}}$