



This worksheet aims to help you master the laws of indices so that you can simplify expressions involving powers easily. Work through each question carefully and show all your workings.

Easy Questions

1. Evaluate $2^3 \times 2^2$.
2. Simplify $\frac{3^5}{3^2}$.
3. Compute 5^0 .
4. Simplify $(2^2)^3$.
5. Evaluate $10^4 \times 10^0$.

Intermediate Questions

11. Simplify $5^3 \times 5^2$.
12. Simplify $\frac{8^7}{8^4}$.
13. Simplify $(7^2)^3$.
14. Simplify $\frac{(2^5)^2}{2^3}$.
15. Simplify $x^3 \times x^4$.
16. Simplify $\frac{y^8}{y^5}$.
17. Simplify $2^3 \times 2^4 \times 2^2$.
18. Simplify $\frac{3^6 \times 3^2}{3^4}$.
19. Simplify $[(a^2)^3 \times a^4]$.
20. Simplify $\frac{b^7}{(b^2)^2}$.
21. Simplify $(2^2)^3 \times 2^3$.

22. Simplify $\frac{(c^5)^2}{c^4}$.
23. Simplify $(4^2)^3$.
24. Express $\frac{a^m}{a^n}$ in its simplest form.
25. Simplify $\frac{(d^3)^3}{d^5}$.

Hard Questions

21. Simplify $\frac{(2^3 \times 2^2)^3}{2^7}$.
22. Simplify $\frac{(x^2)^5 \times x^3}{(x^4)^2}$.
23. Simplify $\left(\frac{3^4}{3^2}\right)^3$.
24. Simplify $\frac{(5^3 \times 5^2)^2}{5^7}$.
25. For any non-zero number a, simplify $\frac{(a^3)^4 \times a^2}{a^5}$.
26. Simplify $\frac{((2^2)^3)^2}{2^8}$.
27. Given that $2^x = 16$, find 2^{x+2} .
28. Simplify $\frac{(7^3 \times 7^{-1})^2}{7^4}$.
29. Express $\left(\frac{a^5}{a^2}\right)^3$ in its simplest form.
30. Evaluate $\frac{(3^2 \times 3^{-3})^3}{3^{-3}}$.