ILLAWARRA TUTORING

In this worksheet you will master the laws of indices so that you can simplify expressions involving powers easily.

Easy Questions

1. Simplify the expression $a^3 \cdot a^4$.

2. Simplify the expression $\dfrac{b^5}{b^2}$.

3. Simplify the expression $\left(c^2\right)^5$.

4. Simplify the expression $2^3 \cdot 2^2$.

5. Simplify the expression $\left(a^2\, b^3\right)^4$.

Intermediate Questions

6. Simplify the expression $\dfrac{x^2 \cdot x^3}{x^4}$.

7. Simplify the expression $\left(y^3\right)^2$.

8. Simplify the expression $2^4 \cdot 2^5$.

9. Simplify the expression $\dfrac{3a^2 \cdot 2a^3}{6a^4}$.

10. Simplify the expression $\left(3^2\right)^3$.

11. Simplify the expression $\left(b^4 \cdot b^3\right)^2$.

12. Simplify the expression $\left(2^3\right)^2 \cdot 2^4$.

13. Simplify the expression $\dfrac{k^5}{k^2}$.

14. Simplify the expression $\dfrac{m^2 \cdot n^2}{m}$.

15. Simplify the expression $\left(5a^2\right)^3$.

16. Simplify the expression $\left((2b)^2\right)^3$.

17. Simplify the expression $\dfrac{4^3}{4^2}$.

18. Simplify the expression $\left(7c^2\right)^2$.

19. Simplify the expression $\dfrac{x^5 \cdot x^3}{x^4}$.

20. Simplify the expression $\left(2^2 \cdot 2^3\right)^2$.

Hard Questions

21. Simplify the expression $\dfrac{\left(2^3 \cdot 2^2\right)^2 \cdot \left(2^4\right)^3}{2^7}$.

22. Simplify the expression $\left(a^2 \cdot \left(a^3\right)^2\right)^3$.

23. Simplify the expression $\dfrac{\left(3^2 \cdot 3^3\right)^2}{3^4}$.

24. Simplify the expression $\dfrac{\left(4a^2\right)^2 \cdot (2a)^3}{8a^3}$.

25. Simplify the expression $\dfrac{\left(5^2 \cdot 5^3\right)^2 \cdot 5^4}{5^3}$.

26. Simplify the expression $\dfrac{\left(2x^2\right)^3 \cdot (3x)^2}{6x^3}$.

27. Simplify the expression $\dfrac{\left(a^2 \cdot b^3\right)^2 \cdot \left(a^3 \cdot b\right)^3}{a^5 \cdot b^4}$.

28. Simplify the expression $\dfrac{2^3 \cdot 2^4 \cdot \left(2^2\right)^3}{2^5}$.

29. Simplify the expression $\dfrac{\left(x^2\right)^3)^2}{x^5}$.

29. Simplify the expression $\dfrac{\left(\left(x^2\right)^3\right)^2}{x^5}$.

30. Simplify the expression $\dfrac{\left(3x^2 \cdot 3x\right)^2}{9x^3}$.