O Level Maths

Topic: Laws of Indices

Practice Problems

Use the laws of indices to simplify the following expressions:

1. $x^3 \times x^2$

2. $\dfrac{y^4}{y^2}$

3. $(2a^3)^2$

4. $\dfrac{5x^6}{x^3}$

5. $(x^2 \times y^3)^2$

6. $\dfrac{a^5}{a^2} \times a^3$

7. $\dfrac{(3x^2)^3}{x^4}$

8. $(2x^3)^2 \times x^4$

Word Problems

1. Simplify the expression for the volume V of a cube where $V = s^3$, and $s = 2x^2$.

2. A population of bacteria grows according to the equation $P = P_0 \times 2^t$, where P_0 is the initial population and t is the time in hours. If $P_0 = 5$, find the population after 3 hours.

3. The area of a square is given by the expression $A = s^2$, where $s = 3x$. Find the area in terms of x.

Multiple-Choice Questions

1. Simplify the expression: $x^4 \times x^2$.

    A. x^6

    B. x^2

    C. x^8

    D. x^3

2. Simplify: $\dfrac{2x^5}{x^2}$.

    A. $2x^3$

    B. $2x^7$

    C. $2x^2$

    D. $2x^5$

3. Simplify the expression: $(3x^2)^3$.

    A. $9x^6$

    B. $27x^6$

    C. $27x^3$

    D. $6x^6$

4. Which of the following is the simplified form of $\dfrac{y^3 \times y^2}{y^4}$?

    A. y

    B. y^6

    C. y^5

    D. 1

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