

92. Simplifying Expressions Using the Laws of Indices

Practice Questions

1. Simplify $x^3 \times x^2$.
2. Simplify $y^5 \div y^2$.
3. Simplify $(a^2)^3$.
4. Simplify $b^4 \div b$.
5. Simplify $(2x^3)^2$.
6. Simplify m^0 .
7. Simplify $(x^2 \times x^4) \div x^3$.
8. Express $4^3 \times 4^2$ as a single power.
9. Simplify $(p^3 \div p^5) \times p^4$.
10. Simplify $(x^5 \div x^2)^3$.

Scenario Questions

1. A computer system doubles its memory size each year. If it starts with x^3 GB, what will its size be in 2 years?
2. A factory produces y^5 products in the first week and decreases production by y^2 the next week. How many products are still produced?
3. A cube has sides of length a^2 . Write an expression for its volume.
4. A storage tank holds b^4 litres of water, but b litres are used daily. How much remains after one day?
5. A science experiment measures a substance's growth as $(2x^3)^2$. Simplify the expression.
6. A scientist records a quantity as m^0 . What is its value?
7. A company increases production by $x^2 \times x^4$ products each day but removes x^3 each evening. Simplify the final number of products left.
8. A lightbulb emits 4^3 lumens of light, which increases by 4^2 each hour. Express the total light emitted as a single power.
9. A chemical reaction decreases the number of molecules from p^3 to p^5 , then increases by p^4 . Find the final molecule count in simplified form.
10. A metal rod expands according to $(x^5 \div x^2)^3$. Simplify this expression to find the final expansion factor.

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Practice Questions

1. x^5
2. y^3
3. a^6
4. b^3
5. $4x^6$
6. 1
7. x^3
8. 4^5
9. p^2
10. x^9

Scenario Questions

1. $x^3 \times 2^2 = 4x^3$ GB
2. $y^5 \div y^2 = y^3$ products
3. $(a^2)^3 = a^6$
4. $b^4 \div b = b^3$ litres
5. $4x^6$
6. 1
7. x^3
8. 4^5 lumens
9. p^2 molecules
10. x^9