

LAWS OF EXPONENTS

Evaluate.

1. 8^3 2. 12^0 3. $(-2)^4$ 4. -2^6 5. $\left(\frac{4}{5}\right)^2$

Use the properties of exponents to write the following as a single exponential expression. Do not evaluate.

6. $47^4 \cdot 47^3$ 7. $(7^2)^3$ 8. $3^5 \cdot 3 \cdot 3^2$

Simplify each expression.

9. $(2x^3)^4(3x^4)^2$ 10. $(5xy^3)^0$ 11. $\frac{12x^4yz^2}{20x^7y^5z^2}$

12. $(8a^3b^4)(9ab)$ 13. $\frac{45x^6}{5x^3} + \frac{36x^8}{2x^5}$ 14. $x^4 \cdot x^5 \cdot x$

15. $5(-3xy^4)^3$ 16. $\frac{3x^4y^6}{15xy^7}$ 17. $6(-2x^3y^2)^3$

18. $x^9 \cdot x^3 \cdot x$ 19. $\frac{5x^3y^4}{15xy^5}$ 20. $(3x^2y)^3(2xy^5)$

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Answers

1. 512 2. 1 3. 16 4. -64 5. $\frac{16}{25}$ 6. 47^7

7. 7^6 8. 3^8 9. $144x^{20}$ 10. 1 11. $\frac{3}{5x^3y^4}$ 12. $72a^4b^5$

13. $27x^3$ 14. x^{10} 15. $-135x^3y^{12}$ 16. $\frac{x^3}{5y}$

17. $-48x^9y^6$ 18. x^{13} 19. $\frac{x^2}{3y}$ 20. $54x^7y^8$