

(EXPONENT) PROPERTIES

<p>Combining Like Terms To add or subtract terms with exponents, _____</p> $Ra^m + Sa^m = (R + S)a^m$ <p>Simplify: a) $3x^4 + 2x^4 =$ _____ b) $3x^2 - x^2 =$ _____ c) $5x^2 + 4x^3 =$ _____</p>	<p>Multiplying Powers To multiply powers with the same base, _____ coefficients, keep the base the same and _____ the exponents. $Ra^m \cdot Sa^n = (RS)a^{m+n}$</p> <p>Simplify: a) $x^4 \cdot x^3 =$ _____ b) $3x^2 \cdot x^5 =$ _____ c) $2x \cdot 4x^8 =$ _____</p>	<p>Dividing Powers To divide powers with the same base, _____ coefficients, keep the base the same and _____ the exponents.</p> $\frac{Ra^m}{Sa^n} = \frac{R}{S}a^{m-n}$ <p>Simplify: a) $\frac{x^6}{x^3} =$ _____ b) $\frac{5x^5}{x^3} =$ _____ c) $\frac{9x^8}{3x^3} =$ _____</p>
<p>Power of a Power To simplify a power of a power keep the base the same and _____ the exponents. $(R^1a^m)^n = R^{1 \cdot n}a^{m \cdot n}$</p> <p>Simplify: a) $(x^4)^2 =$ _____ b) $(2x^2)^3 =$ _____ c) $(3x^3)^5 =$ _____</p>	<p>Zero Exponents Any base raised to an exponent of zero equals _____ $a^0 = 1$</p> <p>Simplify: a) $x^0 =$ _____ b) $6x^2 \cdot x^{-2} =$ _____ c) $\frac{4x^{-3}}{2x^{-3}} =$ _____</p>	<p>Negative Exponents Any base raised to a negative exponent is equal to the _____ of the base raised to a _____ exponent.</p> $a^{-m} = \frac{1}{a^m} \quad \frac{1}{a^{-m}} = a^m$ <p>Simplify: a) $x^{-2} =$ _____ b) $\frac{4x^3}{x^5} =$ _____ c) $\frac{1}{5x^{-3}} =$ _____</p>

Practice: Exponent Rule

Simplify each expression using exponential rules. Your final answer should not include any negative exponents. SHOW ALL WORK!!

1. $x^5 \cdot x^2$

Solution: _____

2. $y^3 \cdot y \cdot y^4$

Solution: _____

3. $b^4 b^{-4}$

Solution: _____

4. $7x^3 y^2 \cdot 5xy^9$

Solution: _____

5. $a^{10} \cdot a^2 \cdot a^{-6}$

Solution: _____

6. $(b^7)^2$

Solution: _____

7. $(m^{-8})^{-3}$

Solution: _____

8. $(x^2 y^4 m^3)^8$

Solution: _____

9. $(2ab)^5$

Solution: _____

10. $(m^7)^4 \cdot m^3$

Solution: _____

11. $\frac{x^5}{x^2}$

Solution: _____

12. $\frac{c^4}{c^8}$

Solution: _____

13. $\frac{5x^{-4}}{x^{-9}}$

Solution: _____

14. $\frac{x^3 \cdot x^4}{x^2}$

Solution: _____

15. $(\frac{6}{z^4})^3$

Solution: _____

16. $(\frac{a^3}{b^5})^4$

Solution: _____

17. $(\frac{3x^7}{2y^{12}})^4$

Solution: _____

18. $(8m)^0$

Solution: _____

19. $3x^{-2} y^{-5}$

Solution: _____

20. $(x^{-2} y^2)^{-3}$

Solution: _____

21. $(\frac{r^2 t^{-3}}{r^{-3} t^5})^{-8}$

Solution: _____