

Unit 4 Objective 9 Remediation

Summary of the Exponent Properties	Product of Powers	Power of a Power	Power of a Product
	$a^m \cdot a^n = a^{m+n}$	$(a^m)^n = a^{m \cdot n}$	$(ab)^n = a^n b^n$
Quotient of Powers	Power of a Quotient	Zero Exponent	Negative Exponent
$\frac{a^m}{a^n} = a^{m-n}$	$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$	$a^0 = 1$	$a^{-n} = \frac{1}{a^n}$

By combining properties, simplify and write each expression with positive exponents only.

1. $(-4y^2)^3 \left(\frac{1}{2}y\right)^2$ 1. _____

2. $(-mn^2)^6$ 2. _____

3. $(-3xy^2)(2x^3)^3$ 3. _____

4. $(-5a^3b)(-ab^2)^3$ 4. _____

5. $(2x^3y^2)^4 (2x^2)^2$ 5. _____

6. $\left(\frac{a^2}{b}\right)^4$ 6. _____

7. $\left(\frac{4f^2}{g^3}\right)^2$ 7. _____

8. $\left(\frac{4n^2}{8n^4}\right)^3$ 8. _____

9. $\left(\frac{-12gh^2}{4h^3}\right)^2$ 9. _____

10. $\left(\frac{xy}{5}\right)^2 \left(\frac{10}{xy^2}\right)$

10. _____

11. $\left(\frac{8p^2q}{24q}\right)^2$

11. _____

12. $(10^3 \cdot 10^{-4})^2$

12. _____

13. $x^0 y^2 z^{-3}$

13. _____

14. $\frac{-15v^5w^3}{25v^7w^0}$

14. _____

15. $(-3a^3b^2)^0 (-7a^5b)^2$

15. _____

16. $\frac{14m^{-3}}{2m}$

16. _____

17. $\frac{(3x^{-2}y^{-1})^3}{18x^3y^2}$

17. _____

18. $\frac{10(-4a^5b)^2}{2a^0b^2}$

18. _____

19. $\frac{5^2(5^0)^3}{5^{-2}}$

19. _____

20. $\left(\frac{a^{-2}}{2b^{-3}}\right)^{-3}$

20. _____

21. $\frac{(6q^{-4})(q^3)^{-2}}{-3q^{-10}}$

21. _____