



Name: _____

Period: _____

3.1 Exponent Rules

1. What does a negative exponent mean?

2. What is the difference between $3x$ and x^3 ? Explain what each of these expressions means.

Simplify each expression. Your answers should contain only positive exponents.

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

4. $3^5 \cdot 3^{-3}$

5. $7p^{-2} \cdot 5p^{-3}$

6. $\frac{3q^{10}}{q^8}$

7. $\frac{12r^{-4}}{2r^3}$

8. $\frac{5t^{-6}}{20t^{-3}}$

9. $(u^2)^7$

10. $(v^{-3})^7$

11. $(w^{-4})^{-1}$

12. $8x^{-2} \cdot 4x$

13. $\frac{8y^2}{24y^{-3}}$

14. $\frac{2za^{-3}}{a}$

15. $\frac{4b^2}{6c^2b^{-2}}$

16. $2m^{-2} \cdot 10km^3n^{-1}$

17. $p^{-3}q^{-4}r^{-1} \cdot 2p^3q^{-4}r^{-2}$

18. $\frac{2t}{tuv^{-3}}$

19. $(2w^2)^{-2}$

20. $(5xy^{-2}z^3)^4$

21. $(3ab^4)^{-3}$

22. $(4c^3d^{-4})^{-4}$

23. $h^2k^{11} \cdot (h^{-3}k^7)^{-5}$