

Exponent Rules Review

Remember to show your work!!

Why is a hill like a lazy young dog?

Complete the problems using the power rules listed to the right. Then, insert the letter beside your answer in the place at the bottom of the page that matches your answer.

$x^6 \cdot x^3 = \underline{\hspace{1cm}}$ S

$\frac{x^{11}}{x^3} = \underline{\hspace{1cm}}$ O

$y^0 = \underline{\hspace{1cm}}$ I

$(x^3)^4 = \underline{\hspace{1cm}}$ A

$x^{-3} = \underline{\hspace{1cm}}$ P

$3x^2y \cdot 2xy^3 = \underline{\hspace{1cm}}$ P

$\frac{x^4}{x^{-7}} = \underline{\hspace{1cm}}$ S

$\sqrt{72} = \underline{\hspace{1cm}}$ E

$2^{-4} = \underline{\hspace{1cm}}$ T

$\sqrt{16x^4} = \underline{\hspace{1cm}}$ U

Exponent Rules

1. Multiplication

$x^a \cdot x^b = x^{a+b}$

2. Division

$\frac{x^a}{x^b} = x^{a-b}$

3. Power to a Power

$(x^a)^b = x^{a \cdot b}$

4. Zero Exponent

$x^0 = 1$

5. Negative Exponent

$x^{-a} = \frac{1}{x^a}$

$\sqrt[3]{27} = \underline{\hspace{1cm}}$ I

$(3x^3y^2)^2 = \underline{\hspace{1cm}}$ L

1 $\frac{1}{16}$ x^{18} **3** x^9 $6x^2y^3$ x^{12} **16** x^{11} $9x^6y^4$ x^8 $\frac{1}{x^3}$ $6\sqrt{2}$ $3\sqrt{8}$ $4x^2$ $6x^3y^4$

EXPONENTS PRACTICE

Simplify the following problems completely. Remember to show your work for credit!

1. $3 \cdot 4^3$

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

3. $x^5 \cdot x^3$

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

5. $\frac{6^5}{6^3}$

6. $\frac{x^4}{x^7}$

7. 8^0

8. $(-9x)^0$

9. $(v^4)^3$

10. $(x^2 y)^4$

11. $\frac{6x^7}{2x^4}$

12. $\frac{8x^5}{4x^2}$

13. $(2cd^4)^2(cd)^5$

14. $(2fg^4)^4(fg)^6$

15. $\frac{x^5 y^6}{xy^2}$

16. $\frac{x^2 y^5}{xy^4}$

17. $\left(\frac{4x^5 y}{16xy^4}\right)^3$

18. $\left(\frac{5x^3 y}{20xy^5}\right)^4$

19. y^{-7}

20. 7^{-2}

21. $\frac{1}{x^{-5}}$

22. $\frac{1}{2^{-4}}$

23. $x^5 \cdot x^{-1}$

24. x^{-6}

25. $x^9 \cdot x^{-7}$

26. $(j^{-13})(j^4)(j^6)$

27. $\frac{x^{-1}}{x^{-8}}$

28. $\frac{52x^6}{13x^{-7}}$

29. $(f^{-3})(f^2)(f^{-3})$

30. $\frac{x^{-4}}{x^{-9}}$

31. $\frac{24x^6}{12x^{-8}}$

32. $\frac{3x^2 y^{-3}}{12x^6 y^3}$

33. $(2x^3 y^{-3})^{-2}$

34. $\frac{2x^4 y^{-4}}{8x^7 y^3}$

35. $(4x^4 y^{-4})^3$

36. $5x^2 y(2x^4 y^{-3})$