

Alg. 1B 8-1 through 8-4 Name: _____

Simplify each expression.

1. 16^0
2. 4^{-2}
3. 3^{-3}
4. 8^{-4}
5. $\frac{8^{-2}}{4^0}$
6. $\frac{9^{-1}}{3^{-2}}$
7. $5(-6)^0$
8. $(3.7)^0$

Simplify each expression. (Eliminate any negative exponents!)

9. $\frac{1}{x^{-7}}$
10. $\frac{3}{a^{-4}}$
11. $\frac{5}{d^{-3}}$
12. $\frac{6}{r^{-5}s^{-1}}$
13. $\frac{d^{-4}}{e^{-7}}$
14. $\frac{3m^{-4}}{n^{-8}}$
15. $\frac{6m^{-8}n}{p^{-1}}$
16. $\frac{a^{-2}b^{-1}}{cd^{-3}}$

Write each number in standard notation.

17. 7×10^4
18. 3×10^{-2}
19. 2.6×10^5
20. 7.1×10^{-4}

Write each number in scientific notation.

21. 51,000,000
22. 975,000,000,000
23. 0.00000012
24. 0.000005008

Order the numbers from least to greatest.

25. $62,040$, 6.2×10^2 , 6.207×10^3 , 6.34×10^{-1}

(over)

Simplify each expression.

26. $m^{12} \cdot m^{-14}$

27. $s^7 \cdot t^4 \cdot t^8$

28. $(-3xy^6)(3.2x^5y)$

29. $5^{-7} \cdot 5^9$

30. $\frac{1}{h^7 \cdot h^3}$

31. $\frac{1}{t^{-5} \cdot t^{-3}}$

32. $f^5 \cdot f^2 \cdot f^0$

33. $r^6 \cdot r^{-13}$

34. $5^{-6} \cdot 5^4$

Simplify each expression. Write each answer in scientific notation.

35. $(6 \times 10^{-8})(12 \times 10^{-7})$

36. $(6 \times 10^{15})(3.2 \times 10^2)$

37. $(5 \times 10^8)(2.6 \times 10^{-16})$

Simplify each expression.

38. $(4a^5)^3$

39. $(2^{-3})^4$

40. $(m^3n^4)^{-4}$

41. $(a^4)^5 \cdot a^{13}$

42. $(3f^4g^{-3})^3(f^2g^{-2})^{-1}$

43. $x^3 \cdot (x^3)^5$

44. $(y^6)^{-3} \cdot y^{21}$

45. $n^6 \cdot (n^{-2})^5$

46. $(m^5)^{-3}(m^4n^5)^4$

Simplify. Write each answer in scientific notation.

47. $10^{-9} \cdot (2 \times 10^2)^2$

48. $(3 \times 10^{-6})^3$

49. $10^4 \cdot (4 \times 10^6)^3$