Name: _____ **Date:** _____

Practice Day

Write each number in standard form.

1. 5.23×10^{4} _____

2. 4.16×10^{-3} _____

3. 1.1×10^{6} _____

4. 1.046×10^{-5} _____

Write each number in scientific notation.

5. 870,000 _____

6. 0.035 _____

7. 16×10^{3} _____

8. 0.0145×10^{-5} _____

Circle the number that has a *greater* value in each pair of numbers.

9. 5.4×10^{14} 8.9×10^{11}

10. 8.1×10^{-11} 7.5×10^{-7}

14. 2.08×10^{13} 2.008×10^{13}

Find the product or quotient. Write your final answer in scientific notation.

15. $(1.1 \times 10^{-5})(2 \times 10^{2})$

16. $(4.8 \times 10^{-3}) \div (4 \times 10^{-5})$

17. $\dfrac{(8 \times 10^{-3})(4 \times 10^{-5})}{(2 \times 10^{-10})}$

18. A conservative estimate of the number of stars in the universe is 6×10^{22}. The average human can see about 3000 stars at night with his naked eye. About how many times more stars are there in the universe compared to the stars a human can actually see?

19. The average American household spends about $40,000 each year. If there are about 1×10^8 households, what is the total amount of money spent by American households in one year?

Simplify every expression using the laws of exponents. *When possible*, <u>evaluate the expression</u>. *All variables represent nonzero numbers*.

20. $8^0 + 9^0$	21. $2^3 \times 2$	22. $3^3 \div 3^5$	23. -4^2	24. $(-4)^2$
25. $2^7 \div 2$	26. 6^{-2}	27. $(-5)^{-3}$	28. $-8x^0$	29. $(-8x)^0$
30. $x^3 \cdot x \cdot x^4$	31. $\frac{6^4}{6}$	32. $\frac{(x^4)^3}{x^8}$	33. $\frac{3^{-4}}{3^{-6}}$	34. $(-5a^3)(10a^5)$

35. A student simplified $4^2 \times 3^3$ in the following way: $4^2 \times 3^3 = 12^5 = 248{,}832$. What error was made by the student? What should the student have done?

36. The chance of winning a big lottery prize is about 10^{-8}, and the chance of being struck by lightning in the U.S. in any given year is about 0.000001. Which do you have a greater chance of experiencing? Explain.