Algebra 1 (3206) Name:_____

Final Exam Review Term 3, Chapter 8

Write each number in scientific notation:

1. 52,000,000

2. .000000002

3. .000125

Simplify each expression. Write each answer in scientific notation.

4. $(7.2 \times 10^{-7})(2 \times 10^{-5})$

5. $(1.6 \times 10^{5})(3 \times 10^{11})$

6. $(3 \times 10^{8})(2 \times 10^{-4})$

7. $(6 \times 10^{-7})(3.2 \times 10^{2})$

8. $(2 \times 10^{-3})^{3}$

9. $\frac{9.35 \times 10^{-3}}{3.71 \times 10^{-5}}$

10. $\frac{4 \times 10^{9}}{8 \times 10^{3}}$

11. $\frac{1.8 \times 10^{-8}}{0.9 \times 10^{3}}$

Simplify each expression.

12. $(x^5y^3)^3(xy^5)^2$

13. $(3f^4g^{-3})^3(f^2g^{-2})^{-2}$

14. $(-8m^4n^{-3})(4m^{-1}n^{-4})$

15. $x^{-9}x^0x^5x^2$

16. $5^{-6}5^4$

17. $\frac{a^7b^8c^3}{a^4b^{11}c^7}$

18. $\left(\frac{r^{-3}s^2t^{-5}}{r^{-4}s^2t^3}\right)^2$

19. $\left(\frac{2x^5y^{-3}z^0}{3x^{-6}y^{-5}z^{-1}}\right)^{-4}$

20. $\frac{x^4y^{-8}z^{-2}}{x^{-1}y^6z^{-10}}$

21. $n^6(n^{-2})^5$

Write an exponential function to model each situation. Find each amount at the end of the specified time.

22. A town with a population of 15,000 grows 3% per year. Find the population at the end of year 10.

23. You buy a new computer for $5,000. The computer depreciates in value (loses value) at a rate of 13.5% each year. How much will your computer be worth in 8 years?

24. The starting salary for a new employee is $32,500 per year. The salary will increase 8% per year. What will the salary be after 5 years? After 10 years?

25. A city of 2,950,000 people has a 2.5% annual decrease in population per year. What will the population be after 7 years?