Chapter 8 Test Review Packet

Name: _____

Simplify each expression as much as possible. (Numbers should *NOT* have exponents!)

1. $5^3 \cdot 5^5$
2. $(3^3)^2$
3. $\left(\frac{3}{5}\right)^2$
4. $\frac{4^5}{4^7}$
5. $\left(\frac{1}{4}\right)^{-1}$
6. 6^{-2}

Simplify each expression as much as possible. Write your answer using only positive exponents.

7. $(5a)^3$
8. $(3xy^2)^2$
9. $(x^3)^6$
10. $\left(\frac{4}{x}\right)^3$
11. $\frac{x^6}{x^2}$
12. x^{-5}
13. $\frac{1}{2x^{-2}}$
14. $4x^{-3}y$
15. $(2x^{-1}y)^2$

Rewrite the number in standard notation.

16. 8.2×10^5

17. 6.03×10^4

18. 4.51×10^{-3}

Rewrite the number in scientific notation.

19. 0.002

20. 1153

21. 3,146,000

Simplify the expression. Write the answer in scientific notation.

22. $(3 \times 10^{-2}) \cdot (12 \times 10^3)$

23. $\dfrac{(24 \times 10^3)}{(2 \times 10^{-6})}$

24. A family purchased a house for $60,000. Each year the value of the house increased by 4%.

a. Write a model that represents the value of the house over time.

b. Find the value of the house after 8 years.

25. You buy a used car for $12,000. It depreciates at a rate of 13% per year.

a. Write a model that represents the value of the car over time.

b. Find the value of the car after 4 years.

Tell whether the model is an exponential growth or exponential decay.

26. $y = 16(1.08)^t$

27. $y = 440(0.7)^t$

28. $y = 60{,}000(2)^t$

What is growth/decay rate (%) for each?