Chapter 8 Test Review Packet

Name: LEY

Simplify each expression as much as possible. (Numbers should $\underline{\textit{NOT}}$ have exponents!)

- 1. 5³·5⁵
 5³⁺⁵
 5⁸
 390625
 - $\begin{array}{c|c}
 4 & \frac{4^{5}}{4^{7}} \\
 4 & 5^{-7} \\
 4^{-2} \\
 1 & 1
 \end{array}$

- 2. $(3^3)^2$ $3^{5 \cdot 2}$ 729
- 5. $\left(\frac{1}{4}\right)^{-1}$ $\frac{1}{4}$ $\frac{1}{1}$ $\frac{1}{4}$

- 3. $\left(\frac{3}{5}\right)^{2}$ $\frac{3^{2}}{5^{2}}$ $\boxed{9}$ $\boxed{25}$

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

7. $(5a)^3$ $5^3 0^3$ 1250^3

8. $(3xy^2)^2$ $3^2\chi^2y^4$ $9\chi^2y^4$

 $\begin{array}{c} 9. \ (x^3)^6 \\ \chi 3 \cdot b \\ \hline \chi^{18} \end{array}$

- $10. \left(\frac{4}{x}\right)^3$ $\frac{4^3}{x^3}$
 - $\begin{bmatrix}
 \sqrt{64} \\
 \sqrt{3}
 \end{bmatrix}$
- $13. \frac{1}{2x^{-2}}$

- $14. 4x^{-3}y$ $\boxed{4y}$ $\boxed{X^3}$

- $12. x^{-5}$ $\begin{array}{|c|c|} \hline 1 \\ \hline \hline x^5 \\ \hline \end{array}$
- 15. $(2x^{-1}y)^2$ $2^2x^{-2}y^3$ $\frac{4y^2}{y^2}$

Rewrite the number in standard notation.

16.
$$8.2 \times 10^5$$

17.
$$6.03 \times 10^4$$

18.
$$4.51 \times 10^{-3}$$

Rewrite the number in scientific notation.

$$\frac{2.0 \times 10^{-3}}{}$$

$$1.153 \times 10^{3}$$

Simplify the expression. Write the answer in scientific notation.

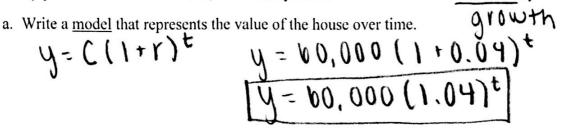
22.
$$(3 \times 10^{-2}) \cdot (12 \times 10^{3})$$

$$36 \times 10^{1}$$

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

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

y= ((1+r) =



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

$$y = 60,000 (1.04)^{8}$$

 $y \approx [82,114.14]$

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 wer time.

The car over time.
$$y = 12,000 (1-0.13)^{t}$$

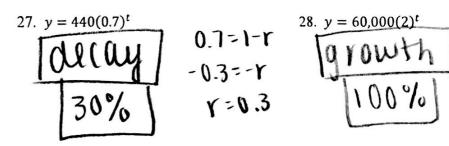
$$y = 12,000 (0.87)^{t}$$

b. Find the value of the car after 4 years

$$y = 12,000 (0.87) +$$
 $y \approx \begin{bmatrix} 50.874.77 \end{bmatrix}$

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

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



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