Applied Algebra II
Chapter 8 Test Review

Name:	KEY	
Date:		Block:

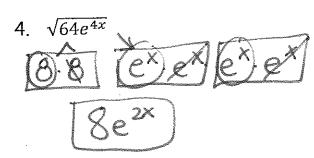
OPERATIONS WITH "e"

* Treat "e" like a variable

1.
$$\frac{e^4}{e^3} \cdot \frac{-3}{e} = \frac{-3e^4}{e^4} =$$

2.
$$(2e^{x})(4e^{x})(-e^{-3x}) = -8e^{x+x+(-3x)} = -8e^{-x} = -8e^{-x}$$

3.
$$\frac{e^{3x} \cdot e^{2x} \cdot e^{x}}{e^{-x}} = \frac{e^{3x+2x+x}}{e^{-x}} = \frac{e^{3x+2x+x}}{e^{3x+2x+x}} = \frac{e^{3x+2x+x}}{e^{-x}} =$$



Rewrite in exponential form, then evaluate.

**You can also use Charge of Base."

5. $\log_2 0.5$ 6.

$$\frac{2^{x}=0.5}{x=-1}$$

$$\frac{\log_{2} 0.5}{\log_{2} 0.5} = -1$$

6.
$$\log_3 1$$
 $3 \times = 1$
 $\log_3 (3) = 0$
 $\log_3 (3) = 0$

7. $\ln e^1$ * In= loge

8.
$$\log_5 3,125$$

$$5^{\times} = 3125$$

$$(X=5)$$

$$\log_5 3,125$$

9.
$$\log_2 32$$

$$2^{\times} = 32$$

$$(x=5)$$

$$\log_2 32$$

$$\log_2 (32)$$

$$\log_2 (32)$$

$$\log_2 (32)$$

$$\log_2 (32)$$

$$\log_2 (32)$$

10.
$$\log_2 \frac{1}{4}$$

$$2^{\times} = \frac{1}{4}$$

$$\log_2 \frac{1}{4}$$

$$\log_2 \frac{1}{4}$$

$$\log_2 \frac{1}{4}$$

$$\log_2 \frac{1}{4}$$

$$\log_2 \frac{1}{4}$$

$$\log_2 \frac{1}{4}$$

*Remember: Mult. +> add.
Div. +> Subtract

CHAPTER & TEST REVIEW

Expand

$$\frac{11. \ln 3xy}{\ln 3 + \ln x + \ln y}$$

12.
$$\log_3 \frac{5x}{2}$$
 $\log_3 5 + \log_3 X - \log_3 2$

13.
$$\log_2 x^2 y$$
 $\log_2 x^2 + \log_2 y$
 $2\log_2 x + \log_2 y$

14.
$$\log_5 \frac{x^2}{2}$$

$$\log_5 X^2 - \log_5 2$$

$$2\log_5 X - \log_5 2$$

Condense

15.
$$3\log x + \log 7$$

 $\log x^3 + \log 7$
 $\log x^3 + \log 7$

16.
$$\log_7 b - \log_7 4$$

$$\log_7 b - \log_7 4$$

17.
$$\log_4 x + 2\log_4 y + 3\log_4 z$$

 $\log_4 x + \log_4 y^2 + \log_4 z^3$
 $\log_4 x + 2\log_4 y^2 + \log_4 z^3$

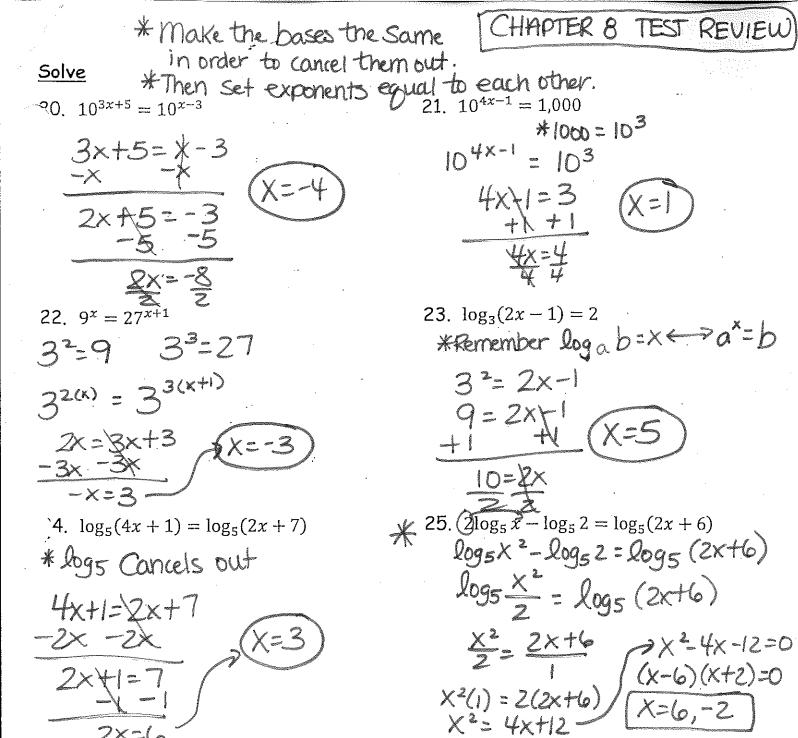
18.
$$y = \log_8(x - 1)$$

 $X = \log_8(y - 1)$

$$8^{\times}=y-1$$

 $y=8^{\times}+1$

$$X = \log_{10} 2y$$
 $X = \log_{10} 2y$
 $X = \log_{10} 2y$



26. The value of a new car purchased for \$20,000 decreases by 10% per year. Write an exponential decay model for the value of the car. Use the model to estimate the value after one year.

Exponential Decay
$$\Rightarrow$$
 $y = a(1-r)^t$
 $a = 20,000$
 $r = 10\% = 0.1$
 $t = 1$
 $y = 20,000(1-0.1)^t$
 $y = $18,000$

CHAPTER 8 TEST REVIEW

1=19

27. You deposit \$1,000 in an account that pays 6% annual interest compounded monthly. Find the balance at the end of 2 years.

$$U = 1000 \left(1 + \frac{0.06}{12}\right)^{12.2}$$

$$U = 5 1127.16$$

- 28. The number of computers C per 100 people worldwide can be modeled by $C = 25.2(1.15)^t$ where t is the number of years.
 - a. What is the initial amount of computers per 100 people worldwide?

b. Estimate the number of computers per 100 people worldwide in 19 years.

$$C = 25.2(1.15)^{4}$$

 $C = 25.2(1.15)^{19}$
 $C = 358.64$
 $C \approx 359$ Computers