

A2H Ch 8 Review

(1) $\log_3 9 = 2$

$\boxed{3^2 = 9}$

(2) $e^x = 43$

$\boxed{\ln 43 = x}$

(3) $\log_8 x \leq -2$

$x \leq 8^{-2}$

$x \leq \frac{1}{8^2}$

$x \leq \frac{1}{64}$

$\boxed{0 < x < 64}$

$\boxed{0 < x \leq \frac{1}{64}}$

(4) $\log_4 (2x+5) \leq \log_4 (4x-3)$

$\frac{2x+5}{-2x+3} \leq \frac{4x-3}{-2x+3}$

$\frac{8}{2} \leq \frac{2x}{2}$

$\boxed{x \geq 4}$

(5) $\log_{\frac{1}{3}} 27$

$\log_{\frac{1}{3}} 27 = y$

$\left(\frac{1}{3}\right)^y = 27$

$\left(\frac{1}{3}\right)^y = \left(\frac{1}{3}\right)^{-3}$

$\boxed{y = -3}$

(6) $\frac{\ln e^{-5}}{\ln e^{-5}}$

$\boxed{-5}$

(7) $\frac{12 \log_{12} 2x}{12 \log_{12} 2x}$

$\boxed{2x}$

(8) $\log \frac{1}{10,000}$

$\log_{10} 10^{-4}$

$\boxed{-4}$

(9) $y = \log_6 x$

$6^y = x$

$\boxed{y = 6^x}$

(10) $\log_7 2xy^2$

$\boxed{\log_7 2 + \log_7 x + 2 \log_7 y}$

(11) $\ln \frac{5x}{3y}$

$\boxed{\ln 5 + \ln x - \frac{1}{3} \ln y}$

(12) $2 \log_6 14 + 3 \log_6 x - \log_6 7$

$\log_6 14^2 + \log_6 x^3 - \log_6 7$

$\log_6 \frac{14^2 x^3}{7}$

$\boxed{\log_6 \frac{196x^3}{7}} = \boxed{\log_6 28x^3}$

$$(13) \ln 8.8$$

$$\boxed{2.175}$$

$$(14) \log\left(\frac{4}{5}\right)$$

$$\boxed{-0.097}$$

$$(15) \log 15$$

$$\log(5 \cdot 3) \rightarrow \boxed{\log 5 + \log 3}$$

$$.699 + .477 = \boxed{1.176}$$

$$(16) \log\left(\frac{5}{3}\right)$$

$$\boxed{\log 5 - \log 3}$$

$$.699 - .477 = \boxed{.222}$$

$$(17) \log 27$$

$$\log 3^3$$

$$3 \log 3$$

$$3(.477) = \boxed{1.431}$$

$$(18) \log_5 23$$

$$\frac{\log 23}{\log 5}$$

$$= \boxed{1.9482}$$

$$(19) 81^{x+2} = 3^{3x+1}$$

$$3^{4(x+2)} = 3^{3x+1}$$

$$3^{4x+8} = 3^{3x+1}$$

$$4x+8 = 3x+1$$

$$\boxed{x = -7}$$

$$(20) 4e^{2x} + 5 \geq 13$$

$$4e^{2x} \geq 8$$

$$e^{2x} \geq 2$$

$$\ln e^{2x} \geq \ln 2$$

$$2x \geq \ln 2$$

$$x \geq \frac{\ln 2}{2}$$

$$\boxed{x \geq .347}$$

$$(21) \log_6 x + \log_6 (x-9) = 2$$

$$\log_6 x(x-9) = 2$$

$$\log_6 x^2 - 9x = 2$$

$$6^2 = x^2 - 9x$$

$$36 = x^2 - 9x$$

$$x^2 - 9x - 36$$

$$(x-12)(x+3) = 0$$

$$\boxed{x=12} \quad x=-3$$

extraneous

$$(22) \ln(3x-5) = \ln(x+7)$$

$$3x-5 = x+7$$

$$2x = 12$$

$$\boxed{x=6}$$

$$x+1=0 \quad \boxed{x=-1}$$

$$(23) \text{Graph } y = \log_3(x+1)$$

$$b=3$$

$$\frac{1}{b}, -1$$

$$\frac{1}{3} - \frac{3}{3} = -\frac{2}{3}$$

$$-1$$

$$1, 0$$

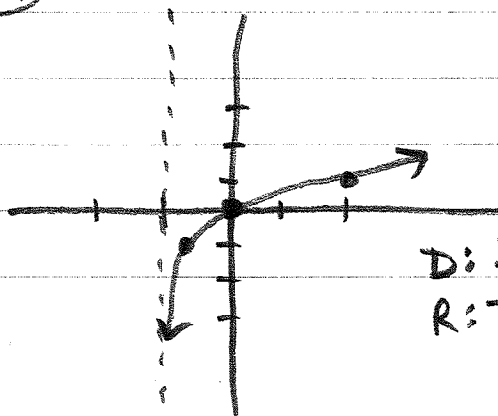
$$1-1=0$$

$$0$$

$$b, 1$$

$$3-1=2$$

$$1$$



$$D: \{x | x > -1\}$$

$$R: \mathbb{R}$$

#34-36-Graph the function, state the domain & range. (8.3 & 8.7-see notes)

CHAPTER

8

NAME _____

DATE _____

Chapter Review Games and Activities

For use after Chapter 8

Match the graph with the type of function by placing the appropriate lower case letter in the blank in front of the numbered name of the function. Match the equations with a capital letter in the blank behind the name of the function. You must use all graphs. One of the functions will have two answers.

a. $y = \left(\frac{1}{2}\right)^{3x}$ *growth*

b. $y = -5\left(\frac{2}{3}\right)^x$ *decay*

c. $y = 4\left(\frac{2}{3}\right)^x$ *decay*

d. $y = \ln(x - 2)$

a 1. Exponential growth

A

b, c 2. Exponential decay B, c

d 3. Logarithmic D

