NAME Key DATE _____ PERIOD _____

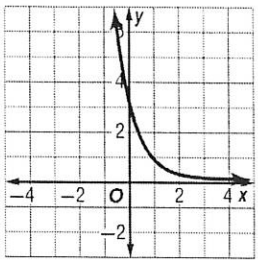
Chapter 7 Mid-Chapter Practice Test

SCORE _____

(Lessons 7-1 through 7-4)

Part I **Write the letter for the correct answer in the blank at the right of each question.**

1. Find the domain and range of the function shown.



1. D: R; R: $y > 0$

2. Solve $4^{2x} = 8^{x+4}$. $4x = 3x + 12$

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

2. $x = 12$

3. Write the equation $4^3 = 64$ in logarithmic form.

10

3. $\log_4 64 = 3$

4. Evaluate $\log_4 32$. $= x$ $\rightarrow$ $(2^2)^x = (2^5)$

$4^x = 32$ $2x = 5$

4. $x = 5/2$

5. Solve $\log_3(7x - 3) \geq \log_3(5x)$.

$7x - 3 > 0$ $\rightarrow$ $x > 3/7$; $\log_3(7x-3) \geq \log_3(5x)$ $\rightarrow$ $7x - 3 \geq 5x$ $\rightarrow$ $-3 \geq -2x$ $\rightarrow$ $x \leq 3/2$

$3/7 < x \leq 3/2$

5. ~~$x \geq 3/7$~~

6. Write the equation $5^4 = 625$ in logarithmic form.

$\log_5 625 = 4$

6. $\log_5 625 = 4$

7. Write the equation $\log_7 49 = 2$ in exponential form.

7. $7^2 = 49$

8. Solve $\log_5(2x - 1) > \log_5(4x)$. $\log_5(2x-1) > \log_5(4x)$

$2x - 1 > 0$ $\rightarrow$ $x > 1/2$; $4x > 0$ $\rightarrow$ $x > 0$

$2x - 1 > 4x$ $\rightarrow$ $-1 > 2x$ $\rightarrow$ $-1/2 > x$ ~~$x < -1/2$~~

No common solution

$-1/2$ 0 $1/2$

8. No solution

Part II

9. Write an exponential function whose graph passes through (0, –5) and (–2, –20).

$y = ab^x$

$-5 = ab^0$ $\rightarrow$ $a = -5$

$-20 = -5b^{-2}$ $\rightarrow$ $4 = b^{-2}$ $\rightarrow$ $4^{-1/2} = b = \frac{1}{4^{1/2}} = \frac{1}{2}$

9. $y = -5(1/2)^x$

10. Write $\log_{\frac{1}{3}} p = -3$ in exponential form.

10. $(1/3)^{-3} = p$