Pre-Calculus CH3 WS Name: Date: Pd:

1. Evaluate:

$$\log_4\left(\log_9\left(\log_2\left(\log_2 256\right)\right)\right)$$

2. Evaluate:

$$\left(\log_2 5+\log_2 3\right)\log_{15} 4$$

3. Evaluate:

$$\frac{1}{\log_4 18}+\frac{1}{2\log_6 3+\log_6 2}+\frac{5}{\log_3 18}$$

4. If $a=\log 2$, $b=\log 3$, $c=\log 5$, and $d=\log 7$, express $\log\left(\frac{75\sqrt{2}}{98}\right)^{-2}$ in terms of *a*, *b* ,*c*, and *d*.

5. Evaluate:

$$\frac{(\log 7)(\log_3 20)(\log 3)(\log_7 5)}{1-\log 2}$$

a) $1+\log 2$

b) 1

c) $\log 5$

d) 2

e) -1

6. If $y=\frac{3^{x+1}-4\cdot 3^x}{2\cdot 3^x}$ then find 64^y.

7) Find the sum of all the values of n such that $6^2(6^n)^n = 6^n * 6^n * 6^n$

8) Find the real value of t such that $2^{t+1} + 2^t = 2^3 + 2^5 + 2^{7-t}$

9) Find the value of a given that $4 * 9^a - 21 = 25 * 3^a$

Factor and Simplify if possible:

10) $\left(\frac{72x^{\frac{2}{3}}y^{\frac{1}{5}}}{18x^{-\frac{1}{3}}y^{\frac{2}{3}}}\right)^{\frac{3}{2}}$

11) $(x^2-4)^{3/2} - 5(x^2-4)^{1/2}$

12) $x + 5x^{2/3} + 6x^{1/3}$

Solve for x : 13) $2^{2x} - 2^{x+1} - 24 = 0$

ANSWERS

1. -1/2 2. 2 3. 3 4. a-2b-4c+4d 5. A 6. $\frac{1}{8}$ 7. 3

8. T = 4 9. $a = \log_3 7$ 10. $\frac{8x^{\frac{3}{2}}}{y^{\frac{7}{10}}}$ 11. $(x-2)^{\frac{1}{2}}(x+2)^{\frac{1}{2}}(x-3)(x+3)$

12. $x^{\frac{1}{3}}\left(x^{\frac{1}{3}}+3\right)\left(x^{\frac{1}{3}}+2\right)$ 13. $\log_2 6$