Name _____ Date _____ Pd ____

6.6 Solving Exponential & Logarithmic Equations & Inequalities CYU

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Solving Exponential Equations	1	2	3
Solving Logarithmic Equations	4, 7	5, 8	6, 9
Checking for Extraneous Solutions		1 - 9	
Solving Exponential Inequalities	10	11	12
Solving Logarithmic Inequalities	13	14	15
Real-World Application			16, 17

Solve the equation. Check for extraneous solutions. Show all work to earn full credit.

1. $7^{3x + 5} = 7^{1 - x}$

2. $5^x = 33$

3. $2e^{4x} + 9 = 15$

4. $\ln (4x - 7) = \ln (x + 11)$

5. $\log_3 (2x + 1) = 2$

6. $\log_6 (5x + 9) = \log_6 6x$

7. $\log_2 x + \log_2 (x - 2) = 3$

8. $\ln x + \ln(x - 2) = 5$

9. $\log_4 (- x) + \log_4 (x + 10) = 2$

Solve the inequality. Show all work to earn full credit. Check for extraneous solutions.

10. $9^x > 54$ 11. $4^x \le 36$ 12. $e^{3x+4} > 11$

13. $\ln x \ge 3$ 14. $-3 \log_5 x + 6 \le 9$ 15. $-4 \log_5 x - 5 \ge 3$

16. **PROBLEM SOLVING** You deposit $1000 in an account that pays 3.5% annual interest compounded monthly. When is your balance at least $1200? $3500?

17. **PROBLEM SOLVING** An investment that earns a rate of return r doubles in value in t years, where $t = \frac{\ln 2}{\ln(1+r)}$ and r is expressed as a decimal. What rates of return will double the value of an investment in less than 10 years?

CYU Reflection: *How far can you go: basic, intermediate, or advanced?*
Rate your mastery level!
How confident are you with the skills this CYU covered? Circle the score you would give yourself.

1 2	3 4 5	6 7	8
Basic	Intermediate	Advanced	Solved ALL!