Algebra 3 w/Trig Name:_____

<12>
Solve the following exponential equations:

1. $10^x = 42$
2. $9^x = .045$
3. $5^x = 10$
4. $4^x = .82$

5. $10^{5x+1} = e^{2-3x}$
6. $5^{2+x} = 6^{3x+2}$

Solve the logarithmic equations:

7. $\log 2 = \frac{1}{4}\log 16 - x$
8. $\frac{1}{2}\log x - \log 100 = 2$

9. $\ln 2 + \frac{1}{2}\ln 3 + 4\ln 5 = \ln x$
10. $\log_8 5 + \frac{1}{2}\log_8 9 = \log_8 x$

11. $\log_7 x - \frac{1}{2}\log_7 4 = \frac{1}{2}\log_7 (2x-3)$
12. $\ln 10 - \frac{1}{2}\ln 25 = \ln x$

13. $\ln x - \frac{1}{2}\ln 3 = \frac{1}{2}\ln(x+6)$
14. $2\ln x - \frac{1}{2}\ln 9 = \ln 3(x-2)$

15. $\log 2 - \frac{1}{2}\log 9 + 3\log 3 = x$
16. $3\log 3 - \frac{1}{2}\log 3 = \log\sqrt{x}$

Solve:

17. $\log_5 137 = 3x + 2$
18. $\log x - 7\log 2 = 14$

19. $7(9^{2x+7}) = 173$
20. $\log_x 16 = \frac{4}{3}$