Name : _____ Block: _____

Pre-Calculus 12
Solving Logarithmic and Exponential Equations Assignment

Solve the equations algebraically. (3 decimal places)

1. $\log_4(x+2) + \log_4(x-1) = 1$ $x = 2$

2. $\log(x-3) + \log(x-2) = \log(2x-6)$ $x = 4$

3. $2\log_3 x - \log_3(x+3) - 3 = 0$ $x = 29.725$

4. $\log_4(x+1) - \log_4(2x-3) = \log_4 8$ $X = 5/3$

5. $\log_3(3x-1) - \log_3(x-1) = 4$ $X = 40/39$

6. $2^{x+3} = 17^x$ $X = 0.972$

7. $4^{x+1} = 5^{x-2}$ $X = 20.638$

8. $3(2^x) = 6^{x-2}$ $X = 4.262$

9. $3(5^{x+4}) = \frac{2^{3x}}{7}$ $X = 20.175$

10. What is the half-life, to the nearest month, of a radioactive isotope if it takes 7 years for 560 grams to decay to 35 grams?

$$A = A_0 c^{\frac{t}{T}}$$

Half-life = 1.75 years
or
21 months

11. How long will it take for $4000 to double if it is invested at 3% compounded monthly?

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

t = 23.13 years