Algebra 2—H HW #_____ Name_____

8.6 Logarithmic Equations and Review Date_____

Solve for x. Give answers for # 7 – 9 in terms of e.

1. $\log_a x = \frac{3}{2}\log_a 9 + \log_a 2$	2. $\ln(4x^2) = \ln(11x-6)$	3. $\ln(3x+5) - \ln(x-5) = \ln 8$
4. $\log_a x + \log_a(x+2) = \log_a 8$	5. $2\log_2 x = 6$	6. $\log_4(x^2-17) = 3$
7. $\ln 4x = 14$	8. $3\ln x - 5 = 16$	9. $\frac{1}{2}\ln(x-3) = 4$

Answers: 1. 54 2. $\frac{3}{4}, 2$ 3. 9 4. 2 5. 8 6. ± 9 7. $\frac{e^{14}}{4}$ 8. e^7 9. e^8+3

Review:

10. Expand and simplify: $\log_2\left(\frac{8\sqrt[3]{M}}{N^5}\right)$	11. Condense to a single logarithm: $2(\ln 15-\ln 5)+\frac{1}{2}\ln\left(\frac{1}{25}\right)$
12. If $\log_2 5 \approx 2.321$ and $\log_2 3 \approx 1.585$, find the approximate value of $\log_2 \sqrt[3]{45}$.	13. Condense to a single logarithm and evaluate: $\log_4 128 - 1$
14. Solve for x: $\log_x \sqrt[5]{9} = \frac{2}{5}$.	15. Graph $y = \ln(x-2)$. State domain and range. Show asymptote.

Answers: 10. $3+\frac{1}{3}\log_2 M-5\log_2 N$ 11. $\ln\left(\frac{9}{5}\right)$ 12. ≈ 1.830 13. $\frac{5}{2}$ 14. 3