Precalculus – Natural Logs **Review #1**

Name: _____ Date: _____ Period: _____

SHOW ALL WORK FOR CREDIT!

Simplify using the properties of logarithms.

1. $\ln e^{5\pi} - \ln 1 + \pi \ln e$

2. $e^{\ln \pi} + e^{0} + \ln e^{2x}$

3. $\ln \dfrac{1}{e^{5}}$

Condense the expression to the log of a single quantity. Simplify when possible:

4. $\ln(5+x) - \ln(x-3) + 6\ln e$

5. $\ln(x+1) - \ln 1 - \ln(x^2-9)$

6. $2\ln(x-1) - \ln x - \dfrac{1}{2}\ln(3y-5) - 2\ln(x^3+3)$

Use the properties of logs to *expand* the expression as a sum, difference, and/or constant multiple of logs.

7. $\ln \dfrac{a^2 b}{cd^3}$

8. $\ln \dfrac{5x}{\sqrt{x^2-3}}$

9. $\ln \dfrac{(x+1)^3}{6xy}$

10. $\ln\left(\dfrac{x^3(2x-1)^2}{\sqrt[5]{3x+1}}\right)$

Find the Domain. Write your answer in interval notation:

10. $g(x) = \ln(2x-11)$

11. $f(x) = \ln(2x^2+x-15)$

12. $v(x) = \ln\left(\dfrac{x^2-2x-8}{x^2-2x+1}\right)$

Find the point(s) of intersection of each set of graphs:

13. $f(x) = \ln(4x)$ *and* $g(x) = \ln(x^2 - 12)$

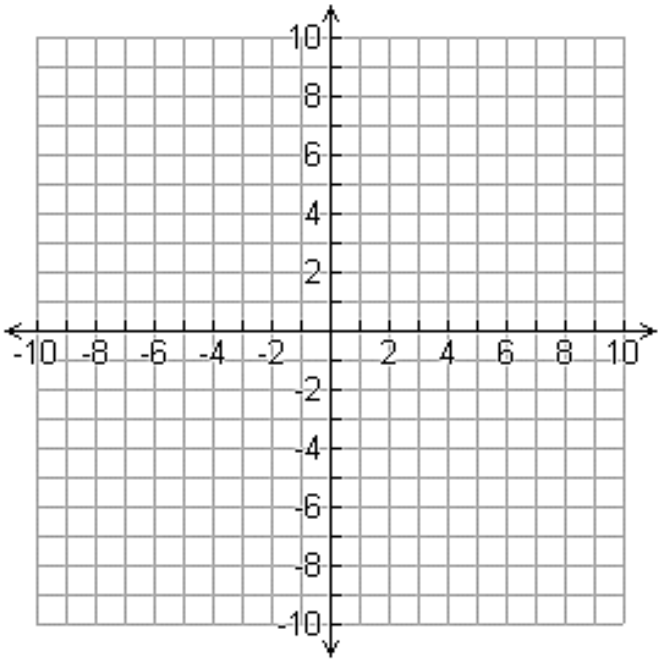
14. $h(x) = e^{-3x}$ and $j(x) = \ln e^{15}$

15. $f(x) = e^{\ln 7}$ and $g(x) = e^{4x}$

16. $f(x) = e^x$ *and* $h(x) = 5^{-x}$

17. Graph: $h(x) = 2\ln(-2x + 6) - 3$

Transformations:



Domain:

Range:

x-int: HINT: Set = 0 and solve for x.

y-int:

Asymptote:

Precalculus – Natural Logs **Review #2**

Name: _____ Date: _____ Period: _____

SHOW ALL WORK FOR CREDIT!

Simplify.

1. $\ln\frac{1}{e}+e^{\ln 5}$ 2. $\ln e^{0}+2\ln e$ 3. $\ln\frac{1}{e^{-\frac{1}{2}}}$ 4. $e^{\ln(2+\pi)}+7\ln e-\ln 1$

Condense the expression to the log of a single quantity. Simplify when possible:

5. $\ln x-2\left[\ln(x-3)+\ln(x+3)\right]$ 6. $\ln(x-1)-\ln(x+1)-\ln 5+\ln 10$

7. $2\left[\ln x+\ln(y+5)\right]-3\ln(z-5)$ 8. $\frac{1}{2}\left[\ln x-\ln(x-4)-\ln(x+4)\right]$

Use the properties of logs to *expand* the expression as a sum, difference, and/or constant multiple of logs

9. $\ln\sqrt[3]{\frac{x}{y}}$ 10. $\ln\frac{x^{4}\sqrt{y}}{z^{5}}$ 11. $\ln\frac{x^{2}}{y^{2}(z+1)^{3}}$

Find the Domain. Write your answer in interval notation:

12. $f(x)=\ln(2x^{2}+3x-9)$ 13. $h(x)=\ln\left(\frac{1-x^{2}}{x}\right)$

14. $v(x)=\ln\left(\frac{x^{2}-2x-3}{x+2}\right)$

Find the point(s) of intersection of each set of graphs:

15. $y_1=\ln(2x^{2}+4x-15)$ *and* $y_2=\ln(x+5)$

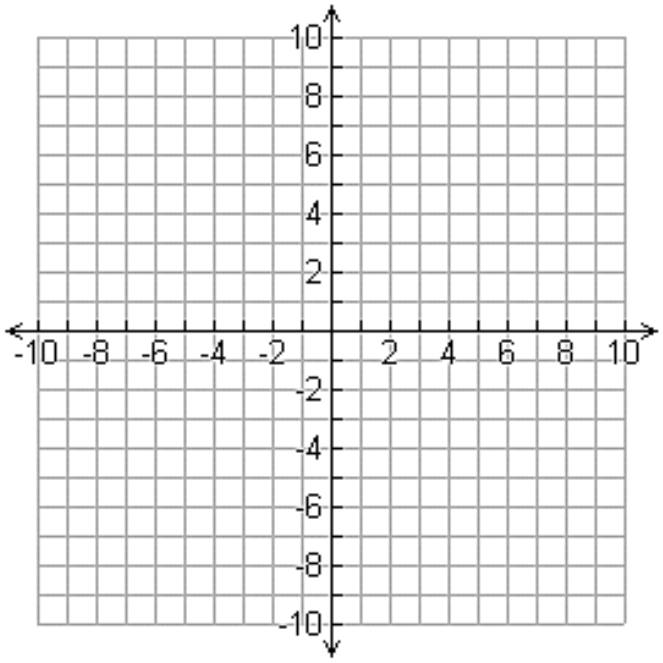
Find the point(s) of intersection of each set of graphs:

16. $y_1 = \ln(-2x)$ *and* $y_2 = \ln(x^2 - 15)$

17. $y_1 = 2\left[\ln 5 - \ln(x^2 - 1)\right]$ and $y_2 = \ln\left[\dfrac{25}{(x^2-1)^2}\right]$

18. Graph: $h(x) = 2\ln(x-1) - 2$

Transformations:



Domain:

Range:

x-int:

y-int:

Asymptote: