Section 3.4
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1-31 odd

Note Title 3/19/2012

1. $\ln 8x = \ln(8 \cdot x)$
$= \boxed{\ln 8 + \ln x}$

3. $\log \frac{3}{x} = \boxed{\log 3 - \log x}$

5. $\log_2 y^5 = \boxed{5 \log_2 y}$

7. $\log x^3 y^2 = \log x^3 + \log y^2$
$\boxed{3 \log x + 2 \log y}$

9. $\ln \frac{x^2}{y^3} = \ln x^2 - \ln y^3$
$\boxed{2 \ln x - 3 \ln y}$

11. $\log \sqrt[4]{\frac{x}{y}} = \log \frac{\sqrt[4]{x}}{\sqrt[4]{y}} = \log \frac{x^{\frac{1}{4}}}{y^{\frac{1}{4}}}$

$\log x^{\frac{1}{4}} - \log y^{\frac{1}{4}}$

$\boxed{\frac{1}{4} \log x - \frac{1}{4} \log y = \frac{1}{4}(\log x - \log y)}$

13. $\log x + \log y = \boxed{\log xy}$

15. $\ln y - \ln 3 = \boxed{\ln \frac{y}{3}}$

17. $\frac{1}{3} \log x = \log x^{\frac{1}{3}} = \boxed{\log \sqrt[3]{x}}$

19. $2 \ln x + 3 \ln y = \ln x^2 + \ln y^3$
$= \boxed{\ln x^2 y^3}$

21. $4\log(xy) - 3\log(yz)$

$= \log x^4y^4 - \log y^3z^3$

$= \log \frac{x^4y^4}{y^3z^3} = \boxed{\log \frac{x^4y}{z^3}}$

23. $\log_2 7 = \frac{\log 7}{\log 2} = \boxed{2.81}$

25. $\log_8 175 = \frac{\log 175}{\log 8} = \boxed{2.48}$

27. $\log_{.5} 12 = \frac{\log 12}{\log .5} = \boxed{-3.58}$

29. $\log_3 x$

$\boxed{\frac{\ln x}{\ln 3}}$

31. $\log_2(a+b)$

$\boxed{\frac{\ln(a+b)}{\ln 2}}$