Worksheet – 4.3 NAME_____

Expand each logarithm completely:

1. $\log\left(11yz^{1/3}\right)$

2. $\ln\left[\frac{5x^3}{t^2}\right]$

3. $\log\left[\frac{2zw^2}{5t\sqrt{2x+3}}\right]$

4. $\ln\left[\frac{8x^{-2}k^2}{3tr^4}\right]^{2/3}$

Rewrite as a single logarithm:

5. $\ln(6x)+\frac{1}{2}\ln x-\ln(2x)$

6. $\log(5z)-\log(x)-3\log(3y)+\log t$

7. The following pairs of expressions are not equal. Explain/show why not.

   a. $(\ln(x))^2 \neq 2\ln(x)$.

   b. $\log(Ax^2) \neq 2 \cdot \log(Ax)$

   c. $\log(x^2) \neq 2 \cdot \log(x)$ for all $x's$

   d. $\ln(10) \neq \log(e)$