ACMAT118 Spring 2024
Professor Manguba-Glover
Section 5.5 Homework (HW 3) Name: _____

Show all work and simplify all answers before circling/boxing them. If you do the problem incorrectly, or don't show sufficient work, you will be asked to rewrite the problem for full credit.

Due next class. Students who turn assignments in late forfeit their ability to rewrite those problems for credit.

1. Combine into a single logarithm: $\ln 24x^6 - \ln 6x^4$
2. Combine into a single logarithm: $\frac{1}{2}\log x + \log x^3 - \log x$
3. Combine into a single logarithm: $2\log_3(x) - 4\log_3(y)$
4. Combine into a single logarithm: $5\ln x + 2\ln y - \frac{2}{3}\ln z$
5. Write as a sum/difference of multiples of logarithms (no exponents): $\log_4(64k^3x)$
6. Write as a sum/difference of multiples of logarithms (no exponents): $\log_b\left(\sqrt[3]{\frac{x+3}{x}}\right)$
7. Write as a sum/difference of multiples of logarithms (no exponents): $\ln\left(\frac{1}{\sqrt{x^2+x+1}}\right)$
8. Write as a sum/difference of multiples of logarithms (no exponents): $\log_2 \frac{a^4}{b^5\sqrt{c^3}}$
9. Express $\log_2(b)$ in terms of log
10. Express $\log_2(10)$ in terms of ln