

## Attendance Quiz 4

Name: \_\_\_\_\_ Date : \_\_\_\_\_

1. Use the properties of logarithms to expand the expression as a sum, difference, and/or constant multiple of logarithms. (Assume all variables are positive.)

(a)  $\log 3x^3y^7$

(b)  $\ln \sqrt{\frac{x^4}{y^5}}$

(c)  $\log \frac{1}{x^3y^4}$

(d)  $\ln \frac{\sqrt{xy^5}}{\sqrt[3]{z^2}}$

2. Condense the expression to the logarithm of a single quantity.

(a)  $3\log x + 4\log y - 2\log z$

(b)  $4[2\ln x + 3\ln(y + 2)] - 2\ln(z - 5)$

(c)  $2[3\ln x - 4\ln(x + 1) + 5\ln(x - 2)]$