COLLEGE ALGEBRA QUIZ

(1) Express $2 \cdot log_A(X) - 4 \cdot log_A(Y) + \frac{1}{3} \cdot log_A(Z)$ as a single logarithm and simplify if possible.
Solution: $log_A(\frac{X^2 \cdot \sqrt[3]{Z}}{Y^4})$

(2) Express $ln(x^3 - 27) - ln(x^2 + 3x + 9) + ln(x + 3)$ as a single logarithm and simplify if possible.
Solution: $ln(x^2 - 9)$

(3) Express $ln(\sqrt[4]{xy^2})$ as a sum and difference of logarithms.
Solution: $\frac{1}{4} \cdot ln(x) + \frac{1}{2} \cdot ln(y)$

(4) Express $log(\sqrt[3]{\frac{W^2}{R}})$ as a sum and difference of logarithms.
Solution: $\frac{2}{3} \cdot log(W) - \frac{1}{3} \cdot logR$

(5) Compute $log_x(3)$ given $log_x(2) = 0.3562$, $log_x(5) = 0.8271$, and $log_x(6) = 0.9208$.
Solution: 0.5646

(6) Compute $log_x(60)$ given $log_x(2) = 0.3562$, $log_x(5) = 0.8271$, and $log_x(6) = 0.9208$.
Solution: 2.1041

(7) Compute $log_x(\frac{1}{2})$ given $log_x(2) = 0.3562$, $log_x(5) = 0.8271$, and $log_x(6) = 0.9208$.
Solution: 0.3562

(8) Compute $log_x(\sqrt[3]{2}))$ given $log_x(2) = 0.3562$, $log_x(5) = 0.8271$, and $log_x(6) = 0.9208$.
Solution: 0.1187

(9) Simplify $ln(e^{-3k})$.
Solution: $-3k$

(10) Simplify $log_5(5^{-2t})$.
Solution: $-2t$