

1. Simplify each expression as much as possible

a.  $\log_2(128)$

c.  $e^{3\ln(5)}$

b.  $\log_3\left(\frac{1}{81}\right)$

d.  $\ln(4e^2) - \ln(2e^{-3})$

2. Solve the given equation for  $x$

a.  $x^2 \ln(x) - 9 \ln(x) = 0$

b.  $\ln(x + 1) = 3$

c.  $\ln(x + 3) + \ln(x) = \ln(4)$