Recall that \( \ln x \) means \( \log_e x \). Thus \((y = \ln x) \iff (x = e^y)\). 
Also, \( \log x \) means \( \log_{10} x \). Thus \((y = \log x) \iff (x = 10^y)\).

1. Compute each of the following numbers without a calculator:
   (a) \( \ln 1 = \)
   (b) \( \ln e^{6.7} = \)
   (c) \( \log 10 = \)
   (d) \( \log 0.1 = \)
   (e) \( \log 1000 = \) (What log rule tells you this is triple log 10?)
   (f) \( \ln(-3) = \)

2. Simplify the following expressions without using a calculator.
   (a) \( \ln \left( \frac{1}{e^2} \right) \)
   (b) \( e^{2\ln 4} \)
   (c) \( \ln \left( \frac{\sqrt{e}}{e^3} \right) \)
   (d) \( e^{2\ln\sqrt{2}} = \)

3. Express the exponential function \( y = 3^t \) in the form \( y = e^{kt} \) for some \( k \).

4. Solve the equation \( d = 10 \ln \left( \frac{I}{I_0} \right) \) for \( I \).
1. Compute each of the following numbers without a calculator:
   (a) 0
   (b) 6.7
   (c) 1
   (d) −1
   (e) 3
   (f) Undefined.

2. Simplify the following expressions without using a calculator.
   (a) −2
   (b) 16
   (c) −2.5
   (d) 2

3. \( k = \ln 3 \)

4. \( I = I_0 e^{\frac{d}{m}} \)