#3 $30 \ln \sqrt{e} + 16 \ln e^{1/8}$

$= 30 \ln e^{1/2} + 16 \ln e^{1/8}$

$= \frac{30}{2} \ln e + \frac{16}{8} \ln e = 15 + 2 = 17$

#7 $\ln(x+16) = \ln(x) + \ln(16)$

$\ln(x+16) = \ln(16x)$

$e^{\ln(x+16)} = e^{\ln(16x)}$

$\Rightarrow (x+16) = 16x \Rightarrow x = \frac{16}{15}$

#13 let $y = e^{x+6} + 6$

$y - 6 = e^{x+6} \Rightarrow \ln(y-6) = x+6$

$\Rightarrow x = \ln(y-6) - 6$

Interchange x & y : $y = \ln(x-6) - 6$

$f^{-1}(x) = \ln(x-6) - 6$

domain : all x such that $x > 6$

#15 $2^{0.05t+2} = 124$

$\ln(2^{0.05t+2}) = \ln 124$

$(0.05t+2)(\ln 2) = \ln 124$

$0.05t = \left(\frac{\ln 124}{\ln 2}\right) - 2 \Rightarrow t = \left[\left(\frac{\ln 124}{\ln 2}\right) - 2\right] / 0.05$