Math 1210 **Name:** _____

Worksheet 9 **July 29, 2020**

Ex 1. Solve the following equations for x. You do not need to evaluate the log of a number.

a) $4^{x+1} = \dfrac{1}{2^x}$

b) $3^{4x} = 9^{3x+3}$

c) $8^x = \left(\dfrac{1}{16}\right)^{x-6}$

d) $\dfrac{300}{1+4e^{-5t}} = 100$

e) $5\ \ln(x+3) = 0$

f) $2\ln(x) + \ln(4) - \ln(2) = 0$

g) $2e^{2x+5} = 5$

Ex 2. Use log rules to expand the following expressions:

a) $\ln\left(\dfrac{\sqrt{1+x}}{x^2}\right)$

b) $\ln\left(\dfrac{x^2\sqrt{x^2-1}}{e^x}\right)$