3. [13 points] Solve the following equations for the indicated variable. Your answers should be given in **exact** form. Show carefully all your work.

a. [4 points] \( \log(x^5) = \pi \). Solve for \( x \).

b. [4 points] \( (\ln(w + 4))^3 = e \). Solve for \( w \).

c. [5 points] \( e^{-2p+7} = 10 \cdot 3^p \). Solve for \( p \).