HW 8H #2e-h, 3, 8acefhj, 10

2.) e) $e^{\ln 3} = \boxed{3}$ f) $e^{2\ln 3} = e^{\ln(3)^2} = e^{\ln 9} = \boxed{9}$

g.) $e^{-\ln 5} = e^{\ln(5)^{-1}} = e^{\ln(\frac{1}{5})} = \boxed{\frac{1}{5}}$ h.) $e^{-2\ln 2} = e^{\ln(2)^{-2}} = e^{\ln\frac{1}{4}} = \boxed{\frac{1}{4}}$

3.) a.) $e \approx 2.718 \neq e^2 \approx 7.389$

$\therefore 1 < \ln(5) < 2$ because $e^1 < 5 < e^2$

b.) $\ln(5) = \boxed{1.609}$

8.) a.) $\ln(6) \approx 1.7918$ $\therefore \boxed{6 = e^{1.7918}}$ c.) $\ln(6000) \approx 8.6995$ $\therefore \boxed{6000 = e^{8.6995}}$ e.) $\ln(0.006) \approx -5.1160$ $\therefore \boxed{0.006 = e^{-5.1160}}$

f.) $\ln(15) \approx 2.7081$ $\therefore \boxed{15 = e^{2.7081}}$ h.) $\ln(1.5) \approx 0.4055$ $\therefore \boxed{1.5 = e^{0.4055}}$ j.) $\ln(0.00015) \approx -8.8049$ $\therefore \boxed{0.00015 = e^{-8.8049}}$

10.) $T = 2\ln(n+1)$

a.) i.) $2\ln(6) = \boxed{3.58s}$ ii.) $2\ln(16) = \boxed{5.55s}$

b.) $2\ln(21) = 6.09s$ $2\ln(41) = 7.43$

$7.43 - 6.09 = \boxed{1.34s}$