• 4.4 - LOGARITHMIC FUNCTIONS

(a) Know the definition of a logarithm with a given base $b$.
(b) What must be true about the base of a logarithm?
(c) Know the base of ln and log.
(d) Given a logarithmic equation $\log_b(x) = y$, know the corresponding exponential equation $b^y = x$.
(e) Know how to find the domain of a logarithmic function.

- Find the domain of the following:
  * $\ln(x^2 - 2)$
  * $\log_2(|x - 4|)$

(f) Know what the graph of a logarithmic function of a given base looks like.
(g) Know where the $x$ and $y$-intercepts of a logarithmic function are.
(h) Know where the vertical asymptote of a logarithmic function is. How does the vertical asymptote change with horizontal/vertical translation?
(i) Know the three expansion properties of logarithms.

- Expand the following:
  * $\ln(x^2 - 4)$
  * $\log_2(2/(x^2 + 9))$
  * $\log(100^{x-2})$

(j) Know how to write logarithmic expressions as one logarithm.

- Write the following as one logarithm:
  * $3\ln(5x) - \frac{1}{2}\ln(x) + \ln(x^2)$
  * $\log(2 + x) - \log(2 - x)$
  * $\log_2(x^3) - \log_2(x - 2) + \frac{1}{5}\log_2(x^2)$

• 4.5 - EXPONENTIAL AND LOGARITHMIC EQUATIONS

(a) Know the change of base formula. (See the first four problems from homework #14)
(b) Know how to solve a logarithmic/exponential equation. (Understand the problems in homework #14)
(c) Know how to solve a logarithmic/exponential application problem. (Understand the problems in homework #14)

**** Understand the problems in 4.5 ****