Tomorrow we have a quiz on log properties. Below is a summary table including the “rules” and general cases that we have outlined so far. Look at your notes, and review the questions we did for homework! There are also some good questions in our “*textbooks*”. (see sections 6.4-7.2)

Summary of Log Properties

|  |  |  |  |
| --- | --- | --- | --- |
| *log*31= 0  *log*271=0 | log775=5  log222217= 17 | logb1  =0 | Product Rule:  **logbmn = logbm + logbn** |
| The Quotient Rule: **logb() = logbm - logbn** | Power Law  **loga(xn) = nlogax** | Change of Base:  **x=logbm**  **x=** | **Blogbx = x** |

Today’s Lesson: ***“Solving Log Equations***”

|  |  |
| --- | --- |
| comparitive graph, showing inversion line in red | Recall: the graphs logby=x where b>1 and 0<b<1  *What do you notice about the x values of the log functions?*  x>0  \*we have to go back and check that the solutions to the equations we find are admissible. (legal) |

Examples:

|  |  |
| --- | --- |
| log(3x-1) + log2 + log4 +log(x+2)  log6x-2 = log 4x+8  6x-2 = 4x+8  2x = 10  x = 5  *note:* in step three, we can “get rid” of the log similar to how we “add” log | 43x-1 = 3x-2  3x-1 log 4 = x-2 log 3  (3x-1) .6 = (x-2) .48  1.8-.6 = .48x-.96  1.32x = -0.36  x= -0.26  This is valid because x is an exponent |
| 72x-6(7x) +5=0  Let a=7x  a2-6a+5=0  (a-5)(a-1)   1. 7x=5 2) 7x=1 2. xlog7=log5   x=log5/log7  =.83   1. x=0 | 25log5x=2x3  52log5x= 2x3  (“cross out”)  x2/x2 = 2x3/x2  1=2x  X= 1/2 |