Astronomy 230 Fall 2006
Homework #1

Due in Class: Thursday, Aug. 31

Note: This homework should be typed.

The Drake equation can be written as:

$$N = R_* \times f_p \times n_e \times f_l \times f_i \times f_c \times L$$

N	Number of advanced civilizations that can contact us in our Galaxy today (stars)
R_*	Star formation rate in the Galaxy per year (stars/year)
f_p	Fraction of those stars with planets (planetary systems/star)
n_e	Number of Earthlike planets (average) for each of those systems (Earthlike planet/planetary system)
f_l	Fraction of those Earthlike planets with basic life forms (basic life/ Earthlike planet)
f_i	Fraction of intelligent life on those planets with basic life forms (intelligent life form/basic life)
f_c	Fraction of that intelligent life that can communicate (communication /intelligent life form)
L	Lifetime of the intelligent life's alien civilization (average) that can communicate (years)

Write down the Drake equation and a personal estimate for each term and the result, the number of civilizations with which we can communicate today. For each term write 2-4 sentences on why you picked that value. To get full credit you must address:

- Are there limits on the value? What are they?
- Do you think the number is well known?

Do not look in your book or use web or ask boy/girl/alien friend. Guesses are fine. Keep this homework handy after it is returned. We will use it at the end of class to compare to the class value and your new "informed" personal estimate.