Astronomy 230 Fall 2005
Homework #1
Due in Class: Friday, Sept. 2

Note: This homework should be typed.

The Drake equation can be written as:

$$N = R_* \times f_p \times n_e \times f_l \times f_i \times f_c \times L \qquad \text{where}$$

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

Write down the Drake equation and a personal estimate on the number of civilizations with which we can communicate today. For each term write 2-4 sentences on why you picked the 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. At this point, you should/can say "1 star/year <u>just</u> seemed good". We will use this at the end of class to compare to the class value and your new "informed" personal estimate.