Astronomy 330 Spring 2008
Homework #9
Due in Class: Thursday, Nov. 10

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)
$\mathbf{R_*}$	Star formation rate in the Galaxy per year (stars/year)
$\mathbf{f_p}$	Fraction of those stars with planets (planetary systems/star)
$\mathbf{n_e}$	Number of Earthlike planets (average) for each of those systems (Earthlike planet/planetary system)
$\mathbf{f_l}$	Fraction of those Earthlike planets with basic life forms (basic life/ Earthlike planet)
$\mathbf{f_i}$	Fraction of intelligent life on those planets with basic life forms (intelligent life form/basic life)
$\mathbf{f_c}$	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 on the number of civilizations with which we can communicate today. For each term write 4-6 sentences. To get full credit you must address (for each term):

- **Facts from class** that ground your estimated value.
- Are there **limits** on the value? What are they?
- Do **you** think the number is well known?

Compare your new value for N to HW 1. How did it change? Do you feel better about your new estimate?