STA376 **Assignment 2** Due Oct 2, 1997

Refer to the survival data given in class and use the CMP prior given by BCJ page 1454.

1. Find the normal approximation to the posterior distribution for (θ_0, θ_1)
2. Using the second order Laplace method, find the posterior means and standard deviations of (θ_0, θ_1).
3. Graph the contours for the posterior distribution (θ_0, θ_1) using the Laplace approximation and the normal approximation. How well does the normal approximation agree with the Laplace approximation?
4. Use importance sampling to find the posterior means and standard deviations. Try to implement the importance sampling routine in C or FORTRAN.

For the energetic Student: What is Jeffrey's prior in this problem? Do the results differ using Jeffrey's prior versus the CMP prior?