CS 322: Quiz 2

Monday, July 8, 2002

The rules for this quiz are as follows:

- **Write your name, student ID number, and e-mail address in the upper-right hand corner of the quiz.**
- This quiz will last for 15 minutes.
- Show **ALL** work for partial/full credit. This includes any definitions, mathematics, figures, etc.
- The quiz is closed book and closed notes, and no calculators are allowed on the quiz.
- No collaboration of any kind is allowed on the quiz.

1. (5 points) Suppose we are working with the model floating point system $(\beta, t, L, U) = (2, 4, -6, 6)$. What is the next floating point number after 18 in this system? Please write your final answer in base 10.

2. (5 points) Complete the following Matlab function so that it performs as desired.

   Do **NOT** make use of CubicSpline.m, spline.m, or any other functions of a similar nature. You must work out all of the details mathematically and write your own code to do the specified task.

```
function [a,b,c,d] = CompleteSpline(y,sL,sR)

% a,b,c,d are column 2-vectors with the property that if
%
%     S(x) = a(1)x^3 + b(1)x^2 + c(1)x + d(1)  on [-1,0]
% and
%     S(x) = a(2)x^3 + b(2)x^2 + c(2)x + d(2)  on [0,1]
% then
%     (a) S(-1) = y(1), S(0) = y(2), S(1) = y(3),
%     (b) S satisfies the other requirements of being a complete
%         spline with a slope of sL at -1 and a slope of sR at 1.
```