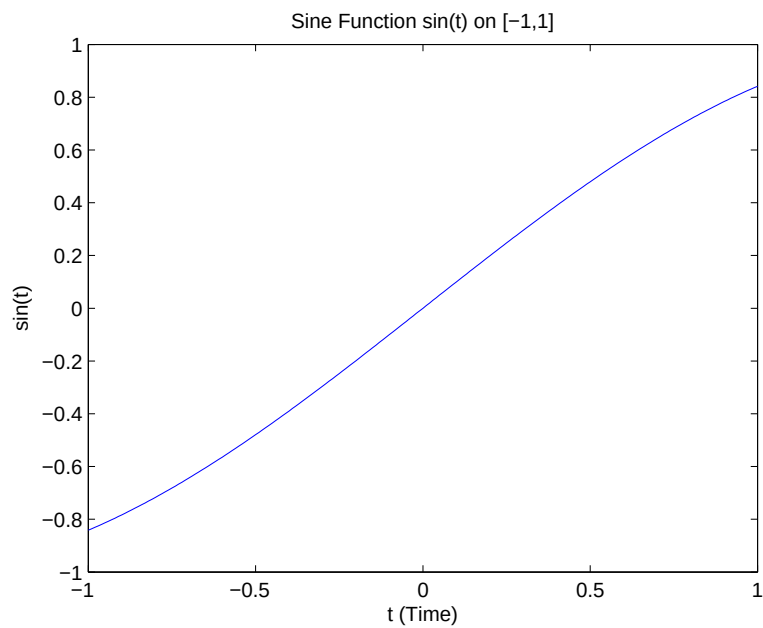


CS515 Spring 2008
Prof. Amos Ron
Assignment # 1 answer key
Prepared by Tzu-Han Chou

1.

```
% Exercise 1
% generate sin function between -1 and 1 with step .01
t=[-1:.01:1];
f = sin(t);
% Plot the graph
plot(t,f)
xlabel('t (Time)')
ylabel('sin(t)')
title('Sine Function sin(t) on [-1,1]')
% Save the plot
print -deps sin.eps
```



2.

```
% Exercise 2
% Create column vector b with first entry 17, others are zeros
b = [17; zeros(19,1)];
% Create A matrix
A = eye(20); A(1:19,1)=1; A(1,1:19)=1; A(20,1:20)=1;
% solve linear equation Ax=b
x = A\b;
>> x
x =
-1.0000
 1.0000
 1.0000
 1.0000
 1.0000
 1.0000
 1.0000
 1.0000
 1.0000
 1.0000
 1.0000
 1.0000
 1.0000
 1.0000
 1.0000
 1.0000
 1.0000
 1.0000
 1.0000
-17.0000
```

3.

```
% Exercise 3
function x = ssolve(a,b,n)

% Create identity matrix
A = eye(n);
% change entry(1,2)
A(1,2)=a;
% change entries of last row
A(end, 1:end-1)=b;
% Create column vector b
b = [1:n].'; b(end-1)=0;

x = A\b;
```

4.

```
% Exercise 4
x1 = ssolve(10,0.1,30);
x2 = ssolve(2,-0.05,50);

subplot(2,1,1)
plot(x1); ylabel('x1');
title('Output of ssolve with parameter (a,b,n)=(10,0.1,30)')
subplot(2,1,2)
plot(x2); ylabel('x2');
title('Output of ssolve with parameter (a,b,n)=(2,-0.05,50)')
```

