

```

% Name (first and last)
% CSC 2262
% cs2262xx
% Sample 6a
t = 0:.001:20;
u0 = [.5  0];
options = odeset('RelTol',1e-7,'AbsTol',1e-7);
[t u] = ode45('sample6af',t,u0,options);
line1x = [0  20];
line1y = [0  0];
plot(t,u(:,1),'b',t,u(:,2),'r',line1x,line1y,'k');
axis([0  20  -5  6]);
set(gca,'xtick',0:2:20);
set(gca,'ytick',-5:6);
xlabel('t');
ylabel('x(blue), v(red)');
title('Sample 6a');

```

```

% function sample6af
function f = sample6af(t,uf)
m = 3.6;
c = 2.8;
k = 19;
x = uf(1);
v = uf(2);
f = zeros(2,1);
f(1) = v;
f(2) = 1/m * ( 32*sin(3*t)*cos(5*t) - c*v - k*x );

```