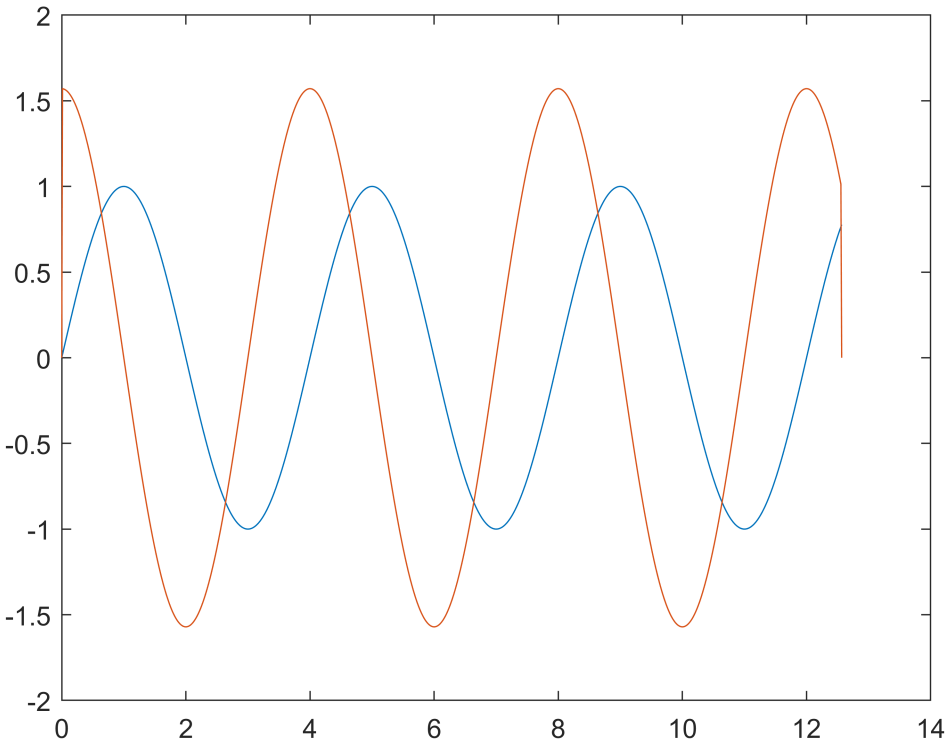
Numerical Analysis Homework - Derivatives

Question #1:

Write a program to find $f'(x)$ at x and plot.

```
len = 1001;
x = linspace(0,4*pi,len);
h = x(2)-x(1);
f = @(x) sin(pi/2*x);
y = f(x);
yP = zeros(1,len);
for i = 2:(len-1)
    yP(i) = (y(i+1)-y(i-1))/(2*h);
end
plot(x,y,x,yP)
```




```
% yP
% fp = derivH(f,x)
% y = f(x)
% yp = derivH(f,x)
% plot(f)
```

Find f'' for this bitch

```
% x = [0.0,0.1,0.2,0.3,0.4,0.5,0.6,0.7,0.8,0.9,1.0]
% f = @(x) sin(Pi/2*x)/sqrt(x+1)
% fp = derivH(f,x)
% y = f(x)
% yp = derivH(f,x)
% plot(f)
```