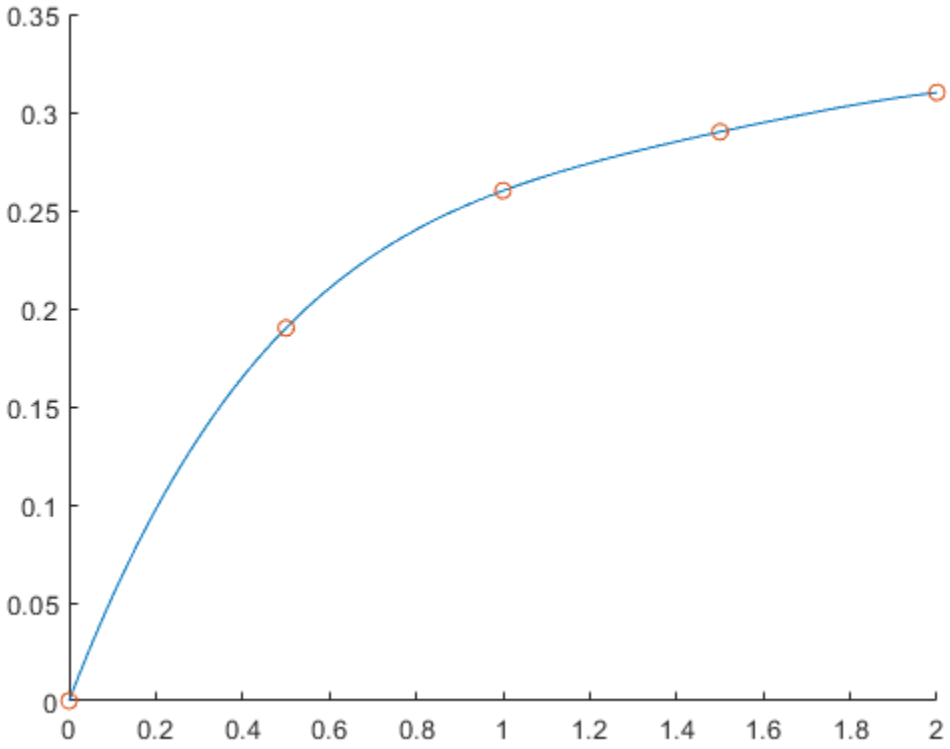
```
%HW4P1

format long

t=[0 0.5 1 1.5 2];
p=[0 0.19 0.26 0.29 0.31];

t0=t.^0;
t2=t.^2;
t3=t.^3;
t4=t.^4;

tm=[t0' t' t2' t3' t4'];

yp=tm\p';
xp=linspace(0,2,100);

a=pf(yp,0.7);

hold on
plot(xp,pf(yp,xp));
scatter(t,p);
hold off

function px=pf(y,t)
    px=y(1)+y(2)*t+y(3)*t.^2+y(4)*t.^3+y(5)*t.^4;
end
```



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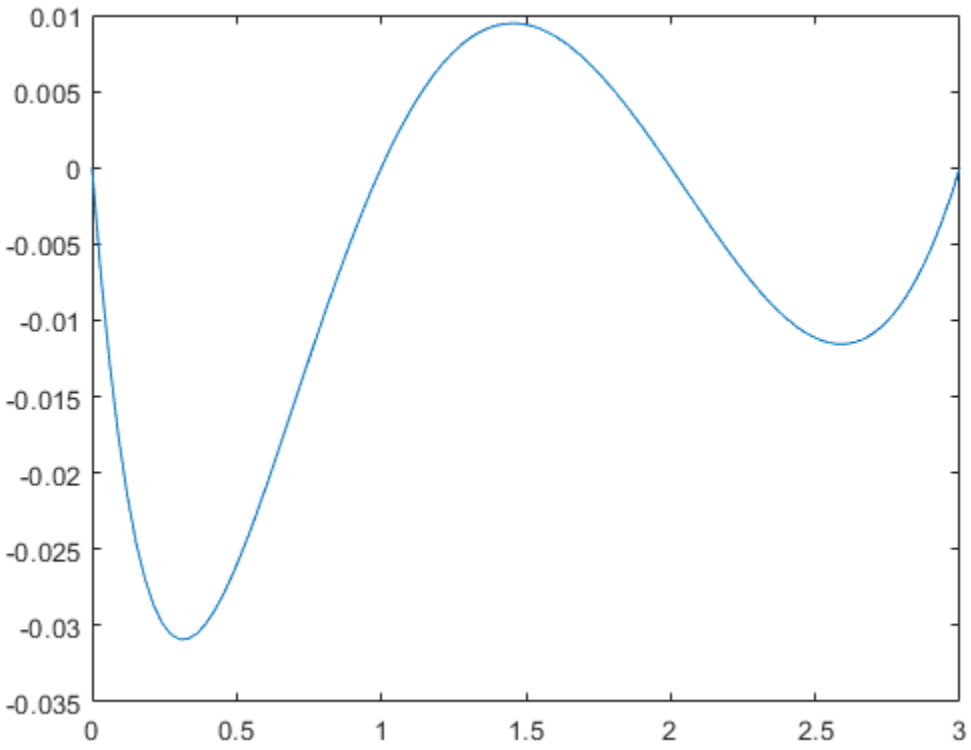
```
%HW4P4

format long

t=[0 1 2 3];
p=[1 1/2 1/3 1/4];

xp=linspace(0,3,100);

plot(xp,f(xp)-pf(xp));

function px=pf(t)
    px = 1- t./2+t.*(t-1)./6-t.*(t-1).*(t-2)./24;
end

function ft = f(t)
    ft = (1+t).^-1;
end
```



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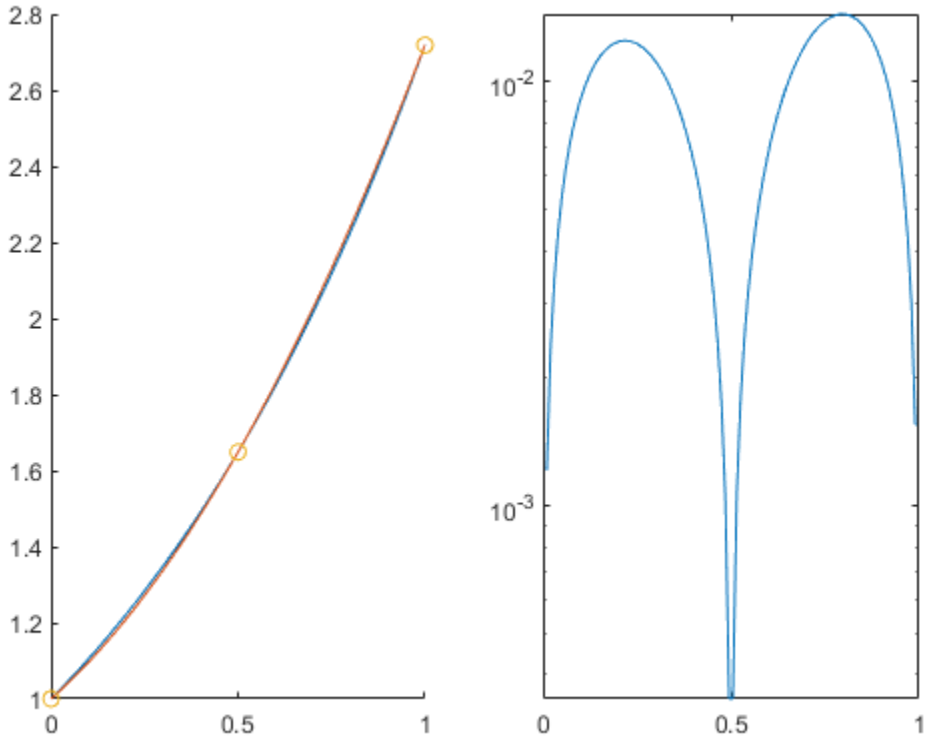
```
%HW4P5

format long

t=[0 1/2 1];
p=[1 exp(1/2) exp(1)];

xp=linspace(0,1,100);

figure(1);
subplot(1,2,1)
hold on
plot(xp,exp(xp));
plot(xp,pf(xp));
scatter(t,p);
hold off
subplot(1,2,2)
semilogy(xp,abs(exp(xp)-pf(xp)))

m=max(abs(exp(xp)-pf(xp)));

function px=pf(t)
    px = 1+(-3+ 4*exp(1/2)-exp(1))*t+(2-4*exp(1/2)+2*exp(1))*t.^2;
end
```



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