%8.22

A=10;

N=100;

n=[1:N]';

rn=[1 0.95 1.05];

for j=1:3

r=rn(j);

s=r.^n;

wn=normrnd(0,r.^n);

x=10\*ones(N,1)+wn;

A0=A;

V0=1;

Ae=zeros(N,1);

Kp=zeros(N,1);

Vp=zeros(N,1);

K=V0/(V0+s(1));

Ae(1)=A0+K\*(x(1)-A0);

Vp(1)=(1-K)\*V0;

V0=Vp(1);

Kp(1)=K;

for i = 2:N

K=V0/(V0+s(i));

Ae(i)=Ae(1)+K\*(x(i)-Ae(i-1));

Kp(i)=K;

Vp(i)=(1-K)\*V0;

V0=Vp(i);

end

figure

subplot(3,1,1)

plot(n,Ae);

title('Estimate A');

subplot(3,1,2)

plot(n,Vp);

title('Estimate Var(A)');

subplot(3,1,3)

plot(n,Kp);

title('Gain');

xlabel(string('r=') + string(num2str(rn(j))));

end



