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```
clear all
close all
clc
```

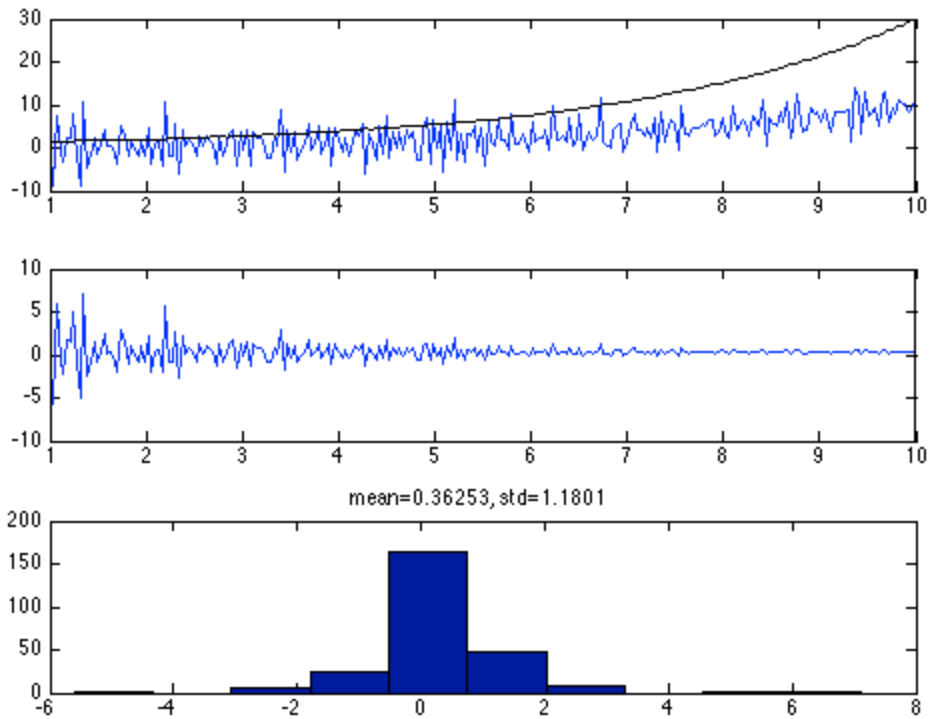
Derivada de la exponencial y estimacion de la razon de crecimiento

```
rr = 0.34;
x = linspace(1,10,256);
n = length(x);
y = exp(rr*x) + 0.08*randn(1,n);
```

```
dx = diff(x);
dy = diff(y);

dery = dy./dx;
```

```
R = dery./y(1:end-1);
figure(1)
%
subplot(3,1,1)
plot(x(1:end-1),dery,'.-')
%axis([0.8 10.2 -5 20])
hold on
plot(x,y,'.-k')
%axis([0.8 10.2 -5 30])
%
subplot(3,1,2)
plot(x(1:end-1),R,'.-')
%axis([0.8 10.2 -5 5])
%
subplot(3,1,3)
hist(R)
%xlim([-1 1])
mR = mean(R);
sd = std(R);
title(['mean=',num2str(mR),', ',', 'std=',num2str(sd)])
```



```

dycd = (y(3:n) - y(1:n-2))./(x(3:n) - x(1:n-2));
Rm = dycd./y(1:end-2);
figure(2)
%
subplot(3,1,1)
plot(x(1:end-2),dycd,'.-')
%axis([0.8 10.2 -5 20])
hold on
plot(x,y,'.-k')
%axis([0.8 10.2 -5 30])
%
subplot(3,1,2)
plot(x(1:end-2),Rm,'.-')
%axis([0.8 10.2 -5 5])
%
subplot(3,1,3)
hist(Rm)
%xlim([-1 1])
mRm = mean(Rm);
sdm = std(Rm);
title(['mean=',num2str(mRm),', ',', 'std=',num2str(sdm)])

```

