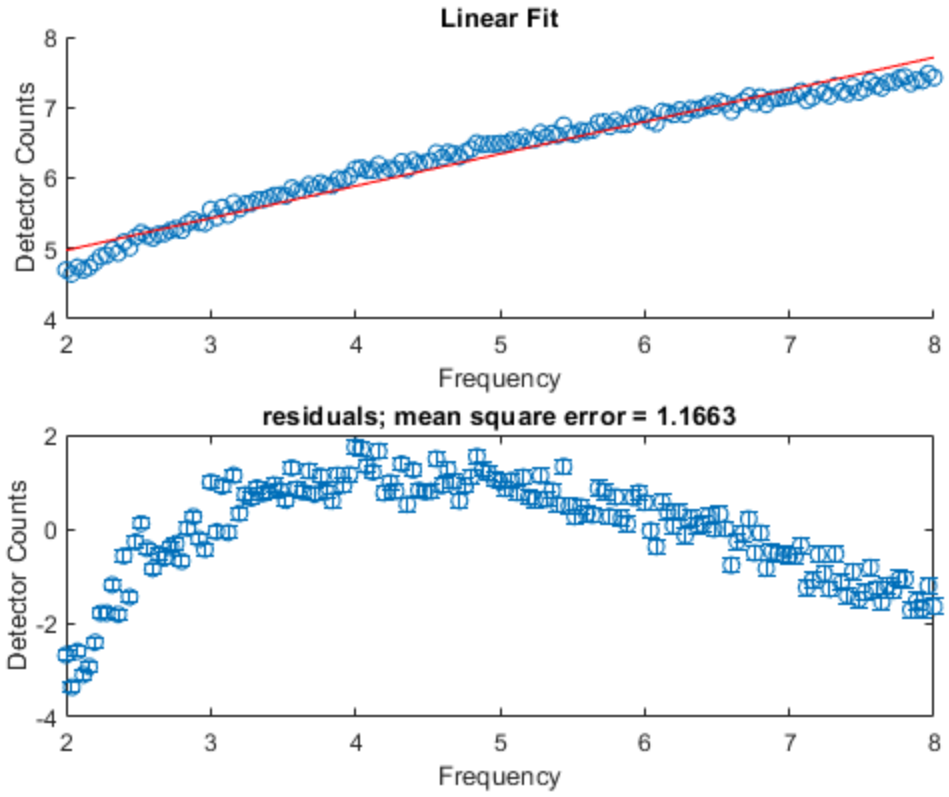
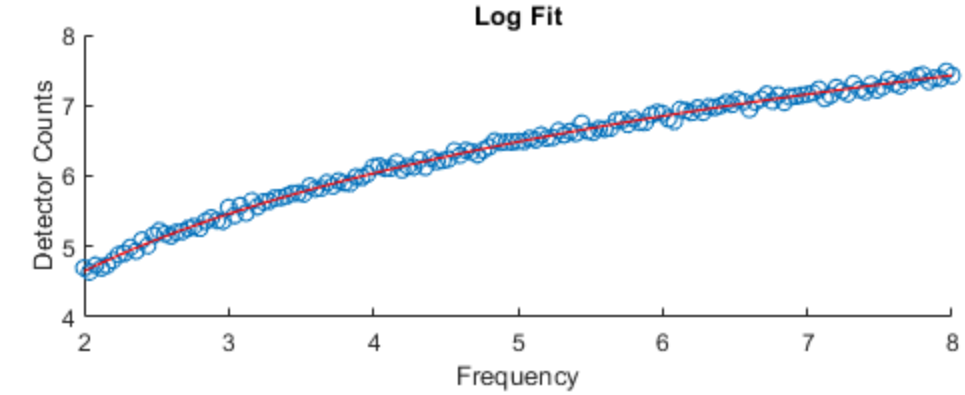
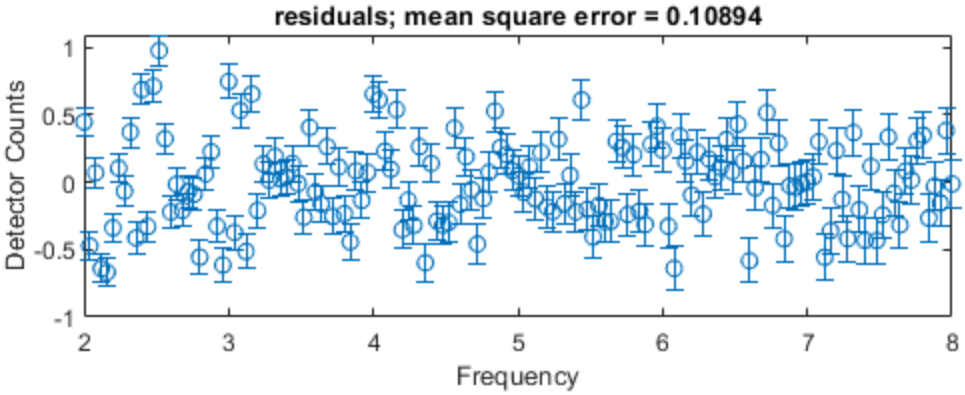
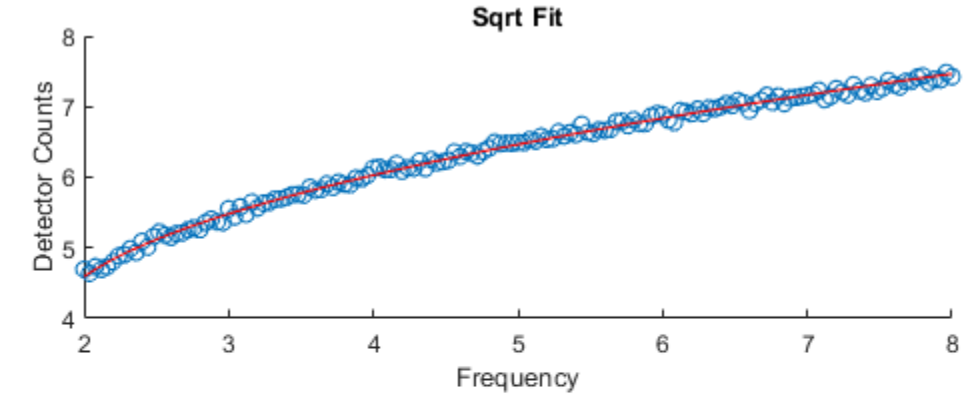
```
clear

filename = 'mysterycurve.txt';
delimiter = ' ';
headerLinesIn = 0;
mystery = importdata(filename, delimiter, headerLinesIn);

x = mystery(:,1);
y = mystery(:,2);
dy = mystery(:,3);
w = dy.^-2;

% Linear Fit
[beta1,R1,J,covb,MSE1,ERRORMODELINFO] = nlinfit(x,y,@linearfit,[1,
 1],'Weights',w);

figure
subplot(2,1,1)
scatter(x, y)
hold on
plot(x,linearfit(beta1,x),'r-')
title('Linear Fit')
xlabel('Frequency')
ylabel('Detector Counts')
subplot(2,1,2)
errorbar(x,R1,dy,'o')
title(['residuals; mean square error = ',num2str(MSE1)])
xlabel('Frequency')
ylabel('Detector Counts')

% Log Fit
[beta1,R1,J,covb,MSE1,ERRORMODELINFO] = nlinfit(x,y,@logfit,[1,
 1],'Weights',w);

figure
subplot(2,1,1)
scatter(x, y)
hold on
plot(x,logfit(beta1,x),'r-')
title('Log Fit')
xlabel('Frequency')
ylabel('Detector Counts')
subplot(2,1,2)
errorbar(x,R1,dy,'o')
title(['residuals; mean square error = ',num2str(MSE1)])
xlabel('Frequency')
ylabel('Detector Counts')

% Sqrt Fit
[beta1,R1,J,covb,MSE1,ERRORMODELINFO] = nlinfit(x,y,@sqrtfit,[1, 1,
 1],'Weights',w);
```

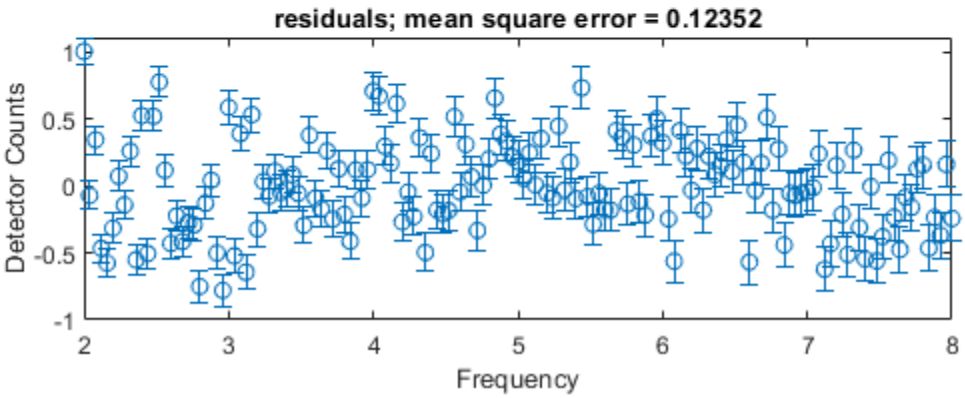
```
figure
subplot(2,1,1)
scatter(x, y)
hold on
plot(x,sqrtfit(beta1,x),'r-')
title('Sqrt Fit')
xlabel('Frequency')
ylabel('Detector Counts')
subplot(2,1,2)
errorbar(x,R1,dy,'o')
title(['residuals; mean square error = ',num2str(MSE1)])
xlabel('Frequency')
ylabel('Detector Counts')
```




Log Fit
Detector Counts
Frequency


residuals; mean square error = 0.10894
Detector Counts
Frequency


Sqrt Fit
Detector Counts
Frequency


residuals; mean square error = 0.12352
Detector Counts
Frequency

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