

Decomposition of H₂O₂

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This is a Matlab script to analyze H₂O₂ decomposition data.

The times at which concentration data was taken are

```
times = [0,120,300,600,1200,1800,2400,3000,3600];
```

The concentration data (moles per liter) is

```
data = [1.00,0.91,0.78,0.59,0.37,0.22,0.13,0.08,0.05];
```

Compute the number of data points

```
N = length(data);
```

and perform a logarithmic transformation of the data

```
log_of_data = log(data);
```

A plot of the log-transformed data:

```
figure(1);  
plot(times,log_of_data, '.r', 'MarkerSize',20)
```

Fit a line (degree 1 polynomial) of the form $y = c(1)*times + c(0)$ to the data

```
c = polyfit(times,log_of_data,1)
```

Evaluate line at each time, superimpose a graph of the line on a plot with the log data

```
figure(2)  
plot(times,log_of_data, '.r', 'MarkerSize',20)  
fittimes = polyval(c,times);  
hold on  
plot(times,fittimes, '-b');  
xlabel("Time (seconds)");  
ylabel("log(concentration) (moles/liter)");  
hold off
```