```
% Liam Fruzyna
% COSC 4540
% Homework 5
% 3.2 CP #2

clear all
close all

%Enter y and t data

y = [67.052 68.008 69.803 72.024 73.4 72.063 74.669 74.487 74.065 76.777]';

N = length(y);
t = [1:N];
plot(t,y,'*')

%Construct the A matrix
for i = 1:N
    A(:,i) = t.^(i-1);
end

%Solve the normal equations
ATA = A'*A;
ATb = A'*y;
xls = ATA\ATb;
%xls = A\

%x = linsolve(A,y);

%Construct and plot the model function

yfit = A * xls;

%Calculate RMSE

hold on
plot(t,yfit,'r')
figure

t = [1:0.01:N];

%Construct the A matrix
for i = 1:N
    B(:,i) = t.^(i-1);
end

Longyfit = B * xls;
plot(t,Longyfit,'k')

ypred = 0;
```

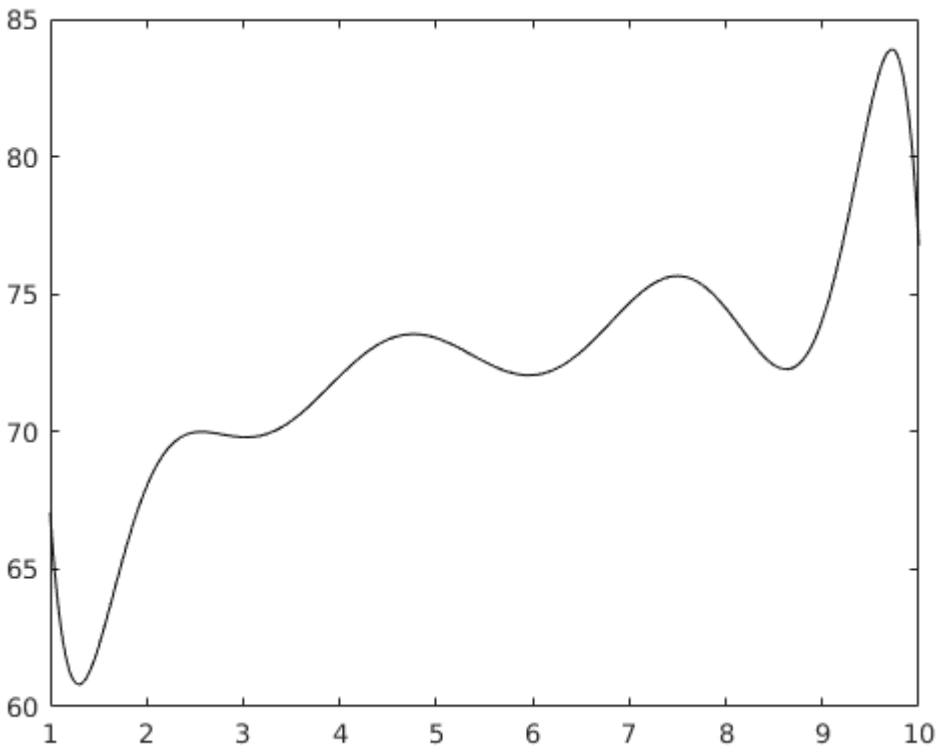
```
xpred = 17;
for i=1:N
    ypred = xls(i) * xpred^(i-1) + ypred;
end
ypred
```

```
>> hw5_2

ypred =

  -1.9606e+06
```

The runge phenomenon does occur. This is seen in the large swing in the oscillation at the beginning and end of the plot.




No, the interpolating polynomial is not a good model for the data, we would expect to see the model to continue upwards but the runge phenomenon breaks this and results in an extremely small prediction.