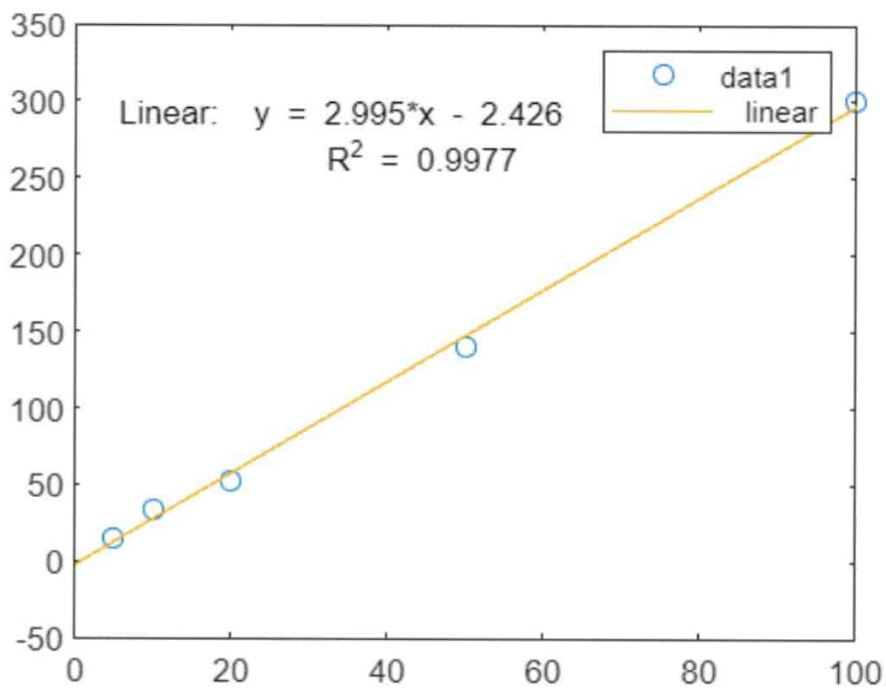

```
% Roll No: 207
% Batch: C3
% Date: 16-03-2023
% Name: Mohanish Khambadkar
% Assignment 4
```

```
clc
x=[5 10 20 50 100];
y = [ 15 33 53 140 301];
plot(x,y,'o');
```

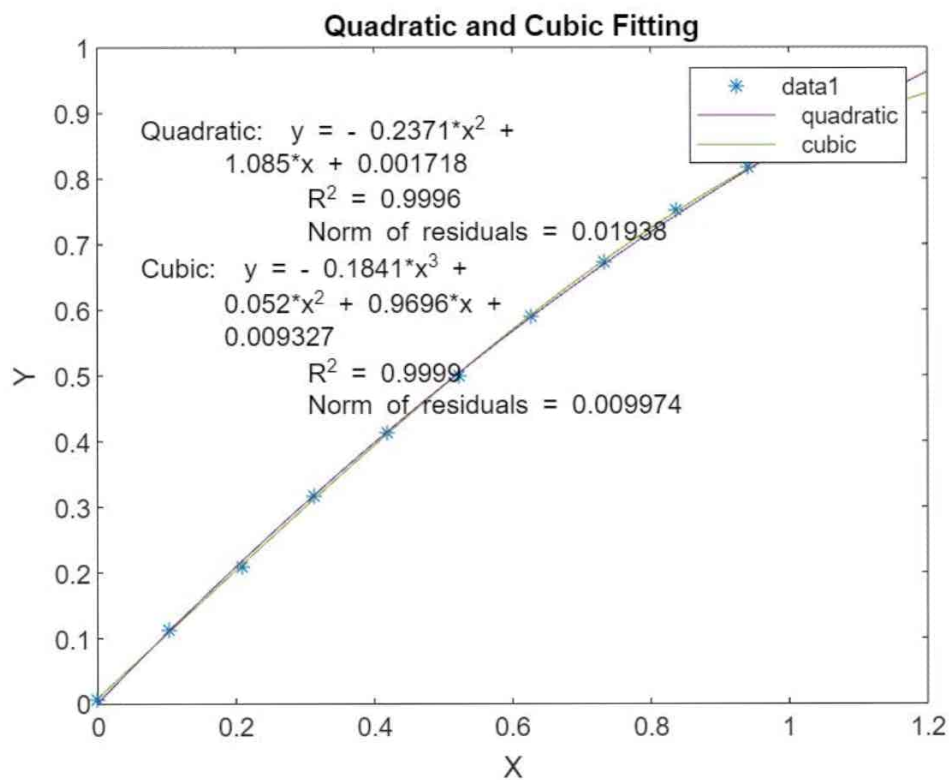


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```
% Roll No: 207
% Batch: C3
% Date: 16-03-2023
% Name: Mohanish Khambadkar
% Assignment 4
```

```
% 2. X is 0 to pi/3 with an interval of pi/30. Y = sin(x) + rand(size(x))/100.
Plot X vs Y with any marker symbol. Use basic fitting to do a quadratic and
cubic fitting. Show equations, plot residual, and show norm of residuals.
```

```
X = 0:pi/30:pi/3;
Y = sin(X) + rand(size(X))/100;
plot(X, Y, '*');
xlabel('X');
ylabel('Y');
title('Quadratic and Cubic Fitting');
```



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```

% Roll No: 207
% Batch: C3
% Date: 16-03-2023
% Name: Mohanish Khambadkar
% Assignment 4
%3. The following data is obtained from an experiment aimed at measuring the
    spring constant of a given spring different masses  $m$  are hung from the spring
    and the corresponding deflection  $\delta$  of the spring from its unstretched
    configuration is measured.  $f=m*g$ ,  $f=k*\delta$ ,  $m*g=k*\delta \rightarrow k=(m*g)/\delta$ .
m = [5 10 20 50 100];
del = [15.5 33.07 53.39 140.24 301.03];
g = 9.81;
F = m/1000*g;
a = polyfit(del, F, 1);
del_fit = 0:10:300;
F_fit = polyval(a, del_fit);
plot(del, F, '*', del_fit, F_fit);
xlabel('Displacement \delta (mm)');
ylabel('Force (N)');
title('Force(N) v/s Displacement \delta (mm)')
k = a(1);
text(100,.32,['\leftarrow Spring const k = ',num2str(k),' N/mm']);

```

