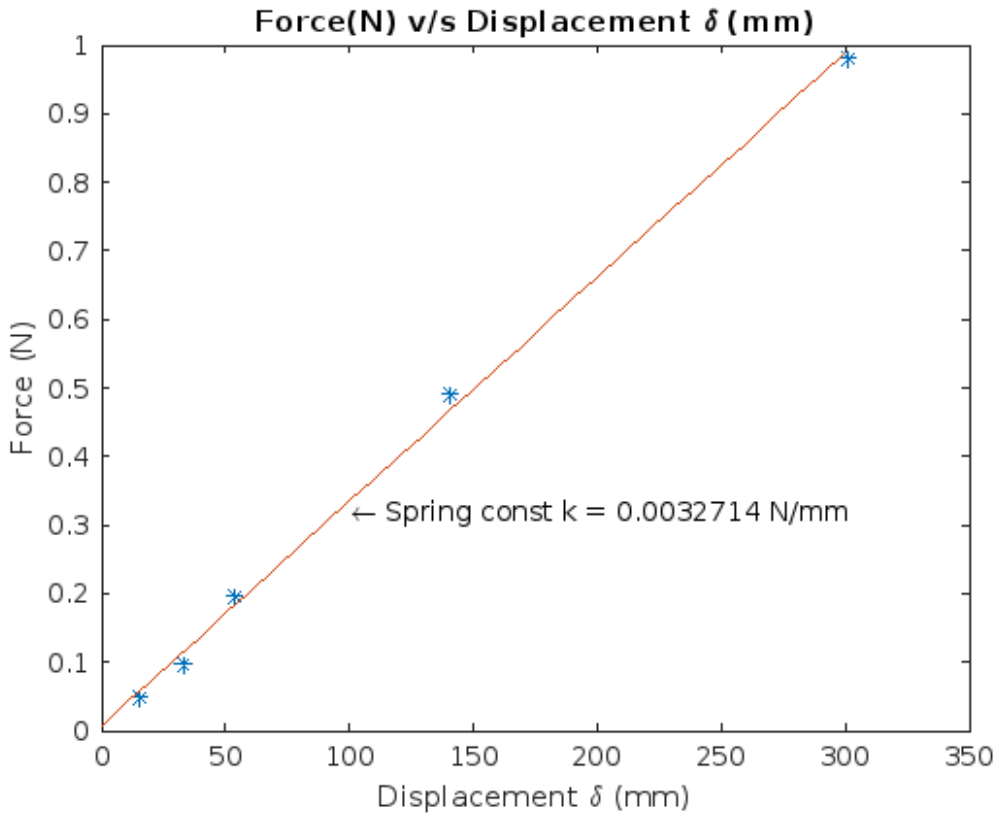
```
% Roll No: 207
% Batch: C3
% Date: 16-03-2023
% Name: Mohanish Khambadkar
% Assignment 4
%3. The following data is obtained from an experiment aimed at measuring the
 spring constant of a given spring different masses m are hung from the spring
 and the corresponding deflection del of the spring from its unstretched
 configuration is measured. f=m*g, f=k*del, m*g=k*del -> k=(m*g)/del.
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']);
```



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