```matlab
%Homework 3/15 Problem 1: Stress vs Strain
%Create a matrix of force values. Transpose matrix to make it vertical
Force=[0 1650 3400 5200 6850 7750 8650 9300 10100 10400]';
%Define area
Area=pi*0.2525^2;
%Create formula to solve for stress
stress=Force/Area

%Create matrix of lengths. Done using increments instead of manually
%inputting each value. Transpose matrices so they will be vertical and
%combine them vertically by using semicolon
lengths=[(2:0.002:2.01)'; (2.02:0.02:2.04)'; (2.08)';(2.12)']
%Create formula to solve for strain
strain=(lengths-2)/2

%Create a table relating stress to strain
stress_strain=[stress strain]
%Plot values, with strain on x-axis and stress on y, formatted as a
 solid
%black line with open circle markers
plot(strain, stress, '-ok')
%Label the axes
xlabel('Strain, in/in'), ylabel('Stress, psi')
%Title graph
title('Strain vs. Stress')
```

stress =

   1.0e+04 *

              0
   0.823780119130681
   1.697486306087463
   2.596155526957297
   3.419935646087978
   3.869270256522894
   4.318604866957811
   4.643124307827473
   5.042532850436288
   5.192311053914594

lengths =

   2.000000000000000
   2.002000000000000
   2.004000000000000
   2.006000000000000
   2.008000000000000
   2.010000000000000
   2.020000000000000
   2.040000000000000
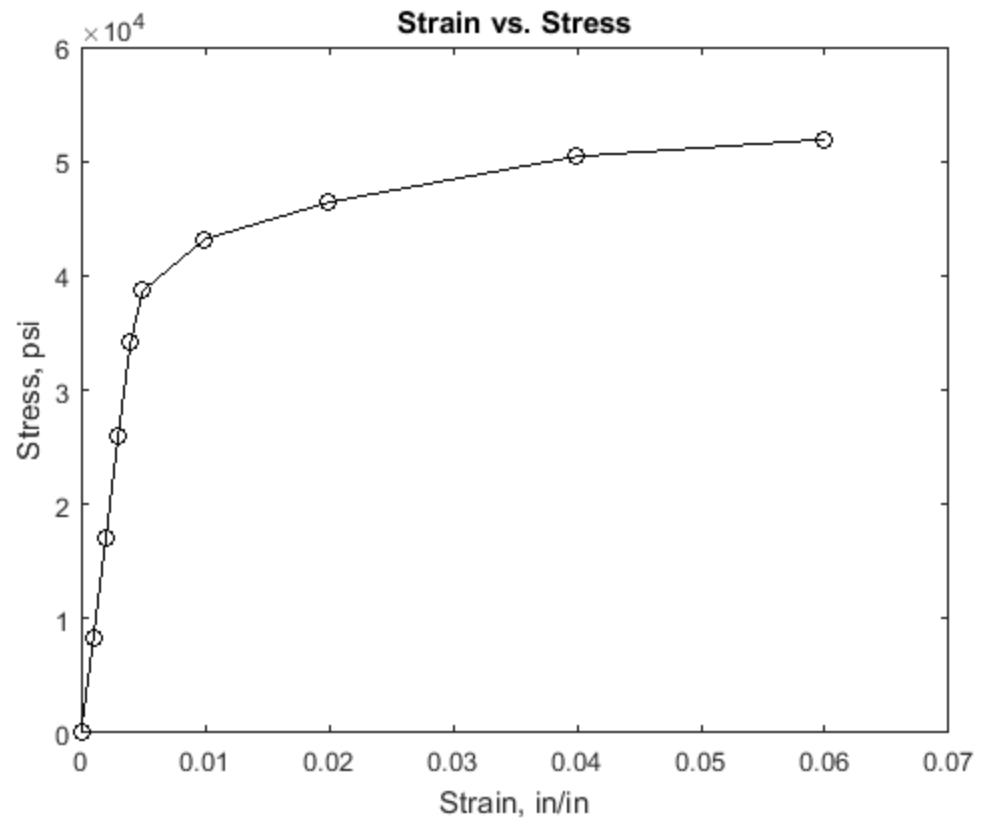
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    2.080000000000000
    2.120000000000000


strain =

                    0
    0.001000000000000
    0.002000000000000
    0.003000000000000
    0.004000000000000
    0.005000000000000
    0.010000000000000
    0.020000000000000
    0.040000000000000
    0.060000000000000


stress_strain =

    1.0e+04 *

                    0                    0
    0.823780119130681    0.000000100000000
    1.697486306087463    0.000000200000000
    2.596155526957297    0.000000300000000
    3.419935646087978    0.000000400000000
    3.869270256522894    0.000000500000000
    4.318604866957811    0.000001000000000
    4.643124307827473    0.000002000000000
    5.042532850436288    0.000004000000000
    5.192311053914594    0.000006000000000
```

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