```
%    _     _      _     _      _     _      _     _      _     _
%   (c).-.(c)    (c).-.(c)    (c).-.(c)    (c).-.(c)    (c).-.(c)
%    / ._. \      / ._. \      / ._. \      / ._. \      / ._. \
%  __\( Y )/__  __\( Y )/__  __\( Y )/__  __\( Y )/__  __\( Y )/__
% (_.-/'-'\-._)(_.-/'-'\-._)(_.-/'-'\-._)(_.-/'-'\-._)(_.-/'-'\-._)
%    || O ||      || O ||      || O ||      || O ||      || O ||
%  _.' `-' '._  _.' `-' '._  _.' `-' '._  _.' `-' '._  _.' `-' '._
% (.-./`-'\.-.)(.-./`-'\.-.)(.-./`-'\.-.)(.-./`-'\.-.)(.-./`-'\.-.)
%  `-'     `-'  `-'     `-'  `-'     `-'  `-'     `-'  `-'     `-'

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%   Author:  Matt Fletcher                                                      %
%    Class:  ENG101, Fall, 2017                                                 %
%  Helpers:  None                                                               %
%                                                                               %
%  Program:  ENG101 Homework 2, Problem 1                                       %
% Due Date:  6 Sep 2017                                                         %
%                                                                               %
% Language:  MatLab                                                             %
%      IDE:  MatLab R2017a                                                      %
%                                                                               %
% Purpose:   Model Blood pressure using given equation                          %
%                                                                               %
%                                                                               %
%                                                                               %
%   "Undocumented features": None.                                              %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

%Housekeeping
clear;
close;
clc;


%Set components
x_initial=0;
x_final=0.5;
x_num=10000;

%Define x vector
x=linspace(x_initial,x_final,x_num);


%Define y function
y=exp(-8*x).*sin(9.7*x+pi/2);

disp 'Solution to problem 1 in graph'

%Plot graph
plot(x,y)
```

```
%Hold plot to add title and axis labels
hold on

%Adds title
title('Normalized Pressure Difference vs Time')

%Adds x label
xlabel('Time')

%Adds y label
ylabel('Normalized Pressure')
```

```
%    _       _       _       _       _       _       _       _       _       _
%   (c).-.(c)    (c).-.(c)    (c).-.(c)    (c).-.(c)    (c).-.(c)    (c).-.(c)
%    / ._. \      / ._. \      / ._. \      / ._. \      / ._. \      / ._. \
%  __\( Y )/__  __\( Y )/__  __\( Y )/__  __\( Y )/__  __\( Y )/__  __\( Y )/__
% (_.-/'-'\-._)(_.-/'-'\-._)(_.-/'-'\-._)(_.-/'-'\-._)(_.-/'-'\-._)(_.-/'-'\-._)
%    || O ||      || O ||      || O ||      || O ||      || O ||      || O ||
%  _.' `-' '._  _.' `-' '._  _.' `-' '._  _.' `-' '._  _.' `-' '._  _.' `-' '._
% (.-./`-'\.-.)(.-./`-'\.-.)(.-./`-'\.-.)(.-./`-'\.-.)(.-./`-'\.-.)(.-./`-'\.-.)
%  `-'     `-'  `-'     `-'  `-'     `-'  `-'     `-'  `-'     `-'  `-'     `-'
```

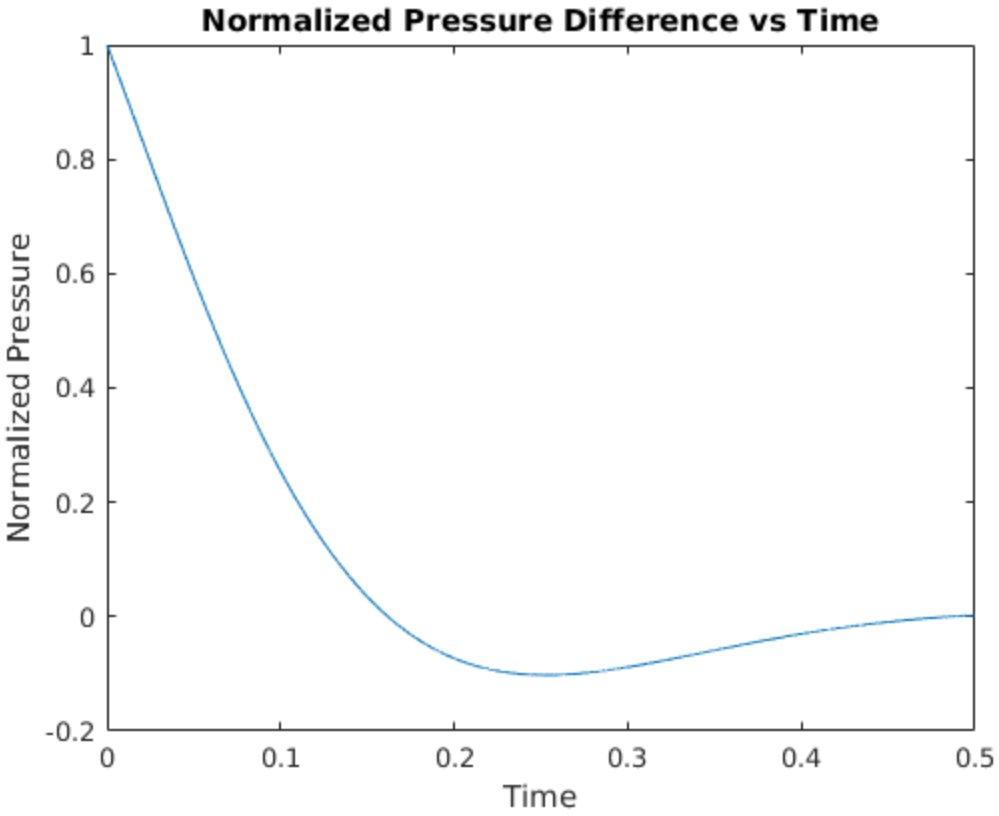
```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%   Author:  Matt Fletcher                                                      %
%    Class:  ENG101, Fall, 2017                                                 %
%  Helpers:  None                                                               %
%                                                                               %
%  Program:  ENG101 Homework 2, Problem 2                                       %
% Due Date:  6 Sep 2017                                                         %
%                                                                               %
% Language:  MatLab                                                             %
%      IDE:  MatLab R2017a                                                      %
%                                                                               %
% Purpose:   Max height achieved by object for given set of variable%
%                                                                               %
%                                                                               %
%                                                                               %
%   "Undocumented features": None.                                              %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

```
%Define Gravity

g=9.8; %m/s^2
```

```
%Define set of points to run through equation

%Velocity points
v=10:2:20;
%Angle points
theta=[50;60;70;80];




%Function
h=v.^2.*sind(theta)/(2*g);


disp 'Solution to Problem 2'
array2table(h)





%    _     _      _     _      _     _      _     _      _     _
%   (c).-.(c)    (c).-.(c)    (c).-.(c)    (c).-.(c)    (c).-.(c)
%    / ._. \      / ._. \      / ._. \      / ._. \      / ._. \
%  __\( Y )/__  __\( Y )/__  __\( Y )/__  __\( Y )/__  __\( Y )/__
% (_.-/'-'\-._)(_.-/'-'\-._)(_.-/'-'\-._)(_.-/'-'\-._)(_.-/'-'\-._)
%    || O ||      || O ||      || O ||      || O ||      || O ||
%  _.' `-' '._  _.' `-' '._  _.' `-' '._  _.' `-' '._  _.' `-' '._
% (.-./`-'\.-.)(.-./`-'\.-.)(.-./`-'\.-.)(.-./`-'\.-.)(.-./`-'\.-.)
%  `-'     `-'  `-'     `-'  `-'     `-'  `-'     `-'  `-'     `-'

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%   Author:  Matt Fletcher                                          %
%      PID:  None                                                   %
%    Class:  ENG101, Fall, 2017                                     %
%  Helpers:  None                                                   %
%                                                                   %
%  Program:  ENG101 Homework 2, Problem 3                           %
% Due Date:  6 Sep 2017                                             %
%                                                                   %
% Language:  MatLab                                                 %
%      IDE:  MatLab R2017a                                          %
%                                                                   %
% Purpose:   Find solution to the given simultaneous equations      %
%                                                                   %
%                                                                   %
%                                                                   %
%   "Undocumented features": None.                                  %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

```
%Set left hand side matrix
A=[1 3 4 0;
    2 1 3 1;
    0 9 7 2;
    4 3 2 2];

%Set right hand side matrix
B=[31;
    27;
    72;
    27];


%Solve equation
solution=A\B;

disp 'Solution to problem 3'
solution
```

```
Solution to problem 1 in graph
Solution to Problem 2

ans =

  4×6 table

      h1        h2        h3        h4        h5        h6
    _______    _______    _______    _______    _______    _______

    3.9084    5.6281    7.6604    10.005    12.663    15.634
    4.4185    6.3626    8.6603    11.311    14.316    17.674
    4.7944    6.9039    9.3969    12.274    15.534    19.177
    5.0245    7.2353    9.8481    12.863    16.279    20.098

Solution to problem 3

solution =

   -0.6882
    1.1720
    7.0430
    6.0753
```



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