```
% Week 10 Discussion - Friday

Spot the error:
1.
x=[1:0.5:5];
y=[1:10];
plot(x,y,'ro');
hold on
xlabel=('x');
ylabel=('f(x)');
hold off

answer=
line 3, Error using plot
Vectors must be the same length.

2. % test=@(x)x.^2+2*x+3*y;
% y=5;
% test(5);
answer=
line 3, undefined function or variable y

3.
% a1 = 4;
% b1 = 5;
% [a,b] = myfunction(12,56)
% [myoutput] = myfunction(b1,a1)
% disp(out1)
% function [out1] = myfunction(c1,c2)
% out1 = c1*c2;
% end
Answer:
Line 3, Too many output arguments.
Line5, Undefined function or variable 'out1'.

Print the exact output:
1.
a=5;
% if a==3
%     b=a;
% else a==2
%     b=3;
% end
ans=
logical
0
```

```matlab
2. % f=@(x,y)x.^2+3*y+1;
% y=@(z)f(z,5)+5;
% y(5)
ans=
46
3.
clear;clc;
a = 4;
b = 6;
[x,y] = myfunction(a,b);
          disp('Thank you!')
          function [y1,y2] = myfunction(c,d)
        y1 =-5^2+c*5;
        y2=d*c-c/2;
          disp('welcome!')
          fprintf('%-3i\n',y1,y2)
          end
```

Answer:
welcome!
-5
22
Thank you!

Write the code:
```matlab
%% write a function that gets as an input a positive integer
 and then shows the user a list of all the divisors of that number in a vector.
for example if the input is 6, function will return [1 2 3 6].
you cant use divisors(N)or factor(N)

clear;clc;
n=input('please enter a positive integer');
divisors=myfunc(n);
disp(divisors)
function out=myfunc(n)
j=1;
for i=1:1:n
if rem(n,i)==0
    m(j)=i;
    j=j+1;
end
end
out=m;
end
```

```
%% write a function that takes an array of any size as an input
and then calculates the sum of all the odd elements in that array.
The program should also show how many odd numbers were in the array.
You must Use fprintf for output display and nested for loops.

array=input('please input an array');
[sum_odd, count]=myfunc(array);
fprintf('the sum of the all odd elements is %f',sum_odd);
fprintf('the total number of odd elements is %f',count);

function [out,countnum]=myfunc(n)
[row,col]=size(n);
count=0;
sum=0;
for i=1:row
for j=1:col
    if rem(n(i,j),2)~=0
        sum=sum+n(i,j);
        count=count+1;
    end
end
end
  out=sum;
  countnum=count;

end
```

```matlab
% Discussion Week 10 - M,Tu
% Review of topics for final

% Kahoot game:
% https://play.kahoot.it/#/k/63cd0d4a-f00d-4a2c-a8d2-f3969d1ac5ed
% Go to kahoot.it and enter the game pin
% Thank you Sam!

clear;clc; close all

% Spot the error

% Problem #1 (2)
% Main Code

X = linspace(1,10,10); X = X';
y = [.5:0.5:5]';
Z = "scalar";
[~] = Hello(Z,y,X);
disp(Ans);

function [Ans] = Hello(I1,I2,I3)
Scalar = 2;
N1 = I3./I2; N1 = Scalar*N1;
Ans = sum(N1);
fprintf('The answer is a %c = %+5.2g\n',I1,Ans)
end

% Problem #2 (6)

x = [0:10]; y = x^2;
F = @(x,y) x.*y;
semilog(x,y,'--xg','Markersize',14)
hold on
semilog(x,F(y,x),'-dy','Linewidth',1.5)
hold off
title("Errors?")
legend('Line1','Line2','Location,'southwest')
```

```matlab
% Exact Output

% Problem #1
% Main Code

X = linspace(0,1,2); X = X';
y = [0:.5:1];
for i = 1:numel(y)
    y(i) = y(i) +X(1);
end
Z = "scalar";
[Hi] = Hello(Z,y,X);

function [Ans] = Hello(I1,I2,I3)
Scalar = 2;
N1 = I3.*I2; N1 = Scalar*N1;
Ans = sum(N1); Ans = sum(Ans);
fprintf('The answer is a %s = %+5.2g\n',I1,Ans)
end

% Problem #2
% Main Program

N = 3;
[A] = MatrixBuilder(N);
fprintf('The answer is = %i\n',A)

function [Ans] = MatrixBuilder(N)
A = zeros(N,N);
M = diag(ones(N,1),0);
U = diag(-ones(1,N-1),1);
L = diag(-ones(1,N-1),-1);
A = M +U +L;
S = sum(A);
Ans = diag(S);
end
```

```matlab
% Graphing Question
% You are given the following two ANONYMOUS functions:
% F(x) = x w/ 0 <= x <= 10
% G(y) = .5y w/ 0 <= y <= 10
% Program in the two anonymous functions and evaluate them. Finally plot
% G vs. F in one figure. In a subplot (separate figure), plot G vs. y in
% the first plot and F vs. x in the next plot.
% For the first FIGURE, it should have a red dashed line with star markers
% that have a pt size of 14
% For the second FIGURE, it should have black solid lines with circle
% markers. The markers should be FILLED with the color cyan.
% The line size should be 1.5.
% Have the x-axis & y-axis on ALL figures go from 0 to 10.

clear;clc;close all
F = @(X) X; G = @(Y) .5*Y;
x = [0:10]'; y = x;
f = F(x); g = G(y);

figure1 = figure;
plot(g,f,'--*r','MarkerSize',14)
xlim([0 10]); ylim([0 10]);

figure2 = figure;
subplot(1,2,1);
plot(g,y,'-ok','LineWidth',1.5,'MarkerFaceColor','c')
xlim([0 10]); ylim([0 10]);
subplot(1,2,2);
plot(f,x,'-ok','LineWidth',1.5,'MarkerFaceColor','c')
xlim([0 10]); ylim([0 10]);
```