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```
%=====Solution to Sim01Q1=====%

clc % clear command window
clear % remove all variables from workspace
close all % close all figures

%-----Q1a-----%

% create 1d vector bounded [-10,10] with a 0.01 increment
x = -10:0.01:10;

% compute y1 and y2
y1 = (sin(x))./(x.^2+1);
y2 = (cos(x))./(x.^2+1);

% plot results
plot (x,y1)
hold on
grid
plot (x,y2)
axis([-10 10 -1 1])
xlabel('x')
ylabel('y')
legend ('y1','y2')
hold off

%-----Q1b-----%

% create 1d vector bounded [0,10] with a 0.01 increment
x = 0:0.01:10;

% compute y1 and y2
y1 = exp(-x).*sin(x);
y2 = exp(-x).*cos(x);

% create figure
figure

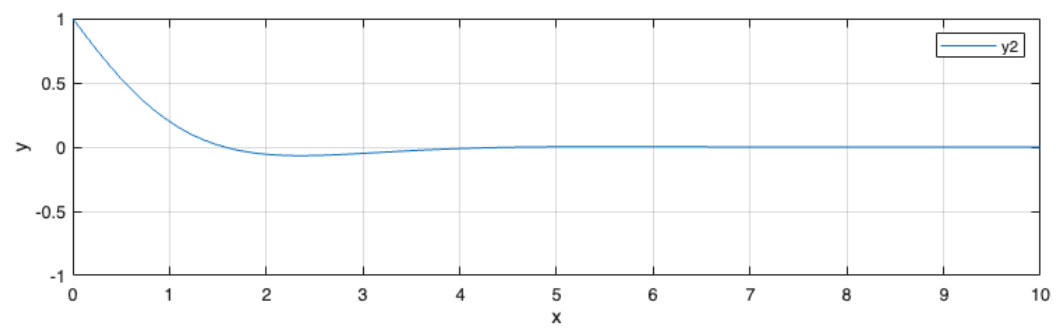
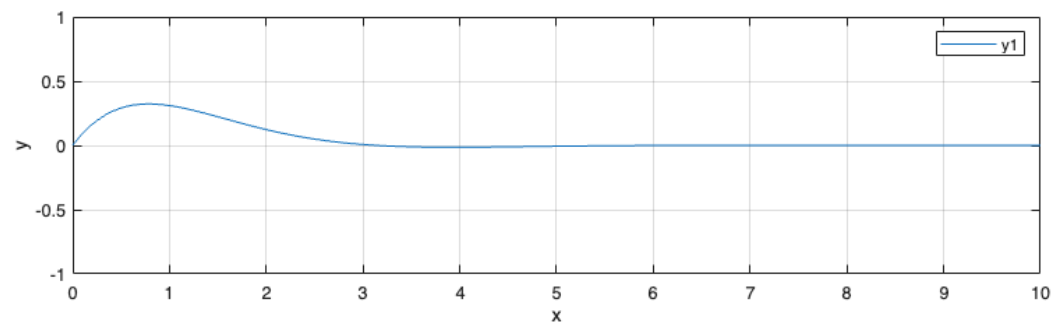
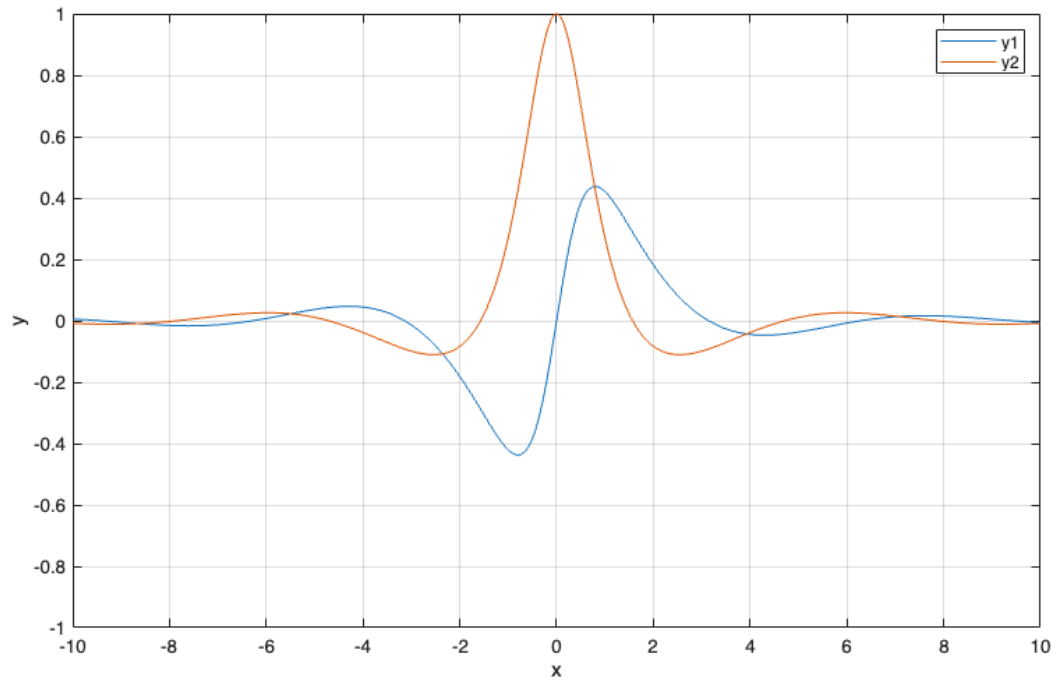
% plot y1 at top of figure
subplot(2,1,1)
plot (x,y1)
grid
axis([0 10 -1 1]) % 0<=x<=10 and -1<=y<=1
xlabel('x')
ylabel('y')
legend ('y1')

% plot y2 at bottom of figure
subplot(2,1,2)
plot (x,y2)
grid
axis([0 10 -1 1]) % 0<=x<=10 and -1<=y<=1
```

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```
xlabel('x')
ylabel('y')
legend('y2')
```



---

```
%=====Solution to Sim01Q2=====%
```

```
clc % clear command window
clear all % remove all variables from workspace
close all % close all figures
```

```
%-----Q2a-----%
```

```
% define A as a transpose (swap rows and columns) of another matrix
A = [1 2 3 4; 5 6 7 8; 9 10 11 12].' % the symbol .' is the transpose
operation
```

```
%-----Q2b-----%
```

```
% double A32
A(3,2) = 2*A(3,2)
```

```
% multiply 4th row by 2.5
A(4,:) = 2.5*A(4,:)
```

```
% subtract the 1st row from the 4th row
A(4,:) = A(4,:)-A(1,:)
```

```
% add 2*(1st column) to 3rd column
A(:,3) = A(:,3) + 2*A(:,1)
```

```
% swap the 1st and 3rd columns of A
x = A(:,1);
A(:,1) = A(:,3);
A(:,3) = x
```

```
% change the first row to [1 2 3]
A(1,:) = [1 2 3]
```

```
%-----Q2c-----%
```

```
% plot second column against first column
plot(A(:,1),A(:,2))
```

```
% plot third column against first column
hold on
plot(A(:,1),A(:,3))
hold off
```

```
A =
```

1	5	9
2	6	10
3	7	11
4	8	12

---

$A =$

1	5	9
2	6	10
3	14	11
4	8	12

$A =$

1	5	9
2	6	10
3	14	11
10	20	30

$A =$

1	5	9
2	6	10
3	14	11
9	15	21

$A =$

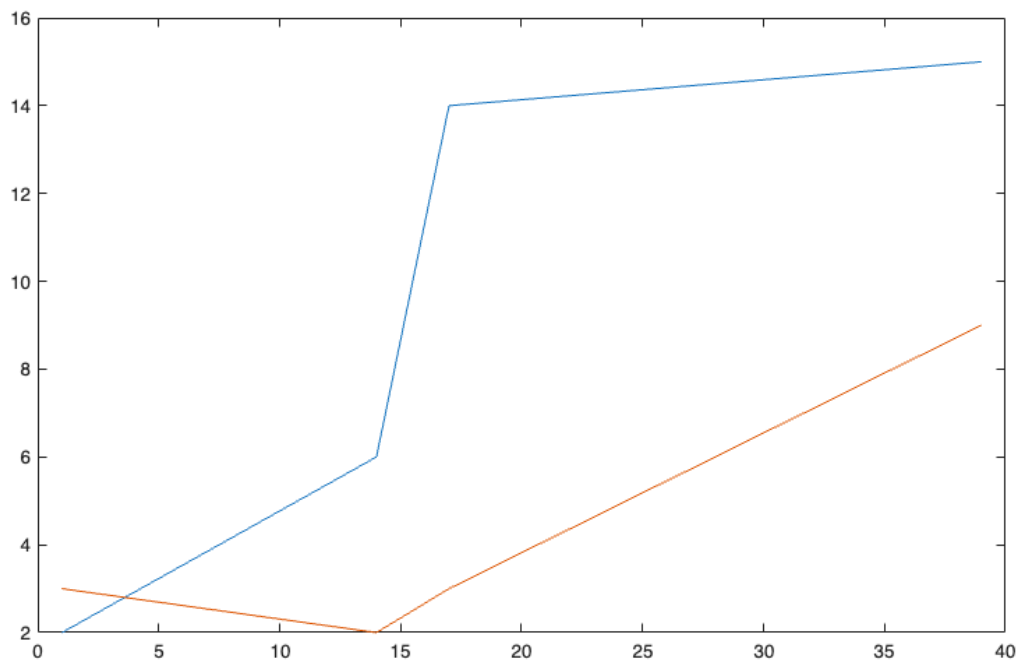
1	5	11
2	6	14
3	14	17
9	15	39

$A =$

11	5	1
14	6	2
17	14	3
39	15	9

$A =$

1	2	3
14	6	2
17	14	3
39	15	9



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