Table of Contents

Problem 1

setup arrays

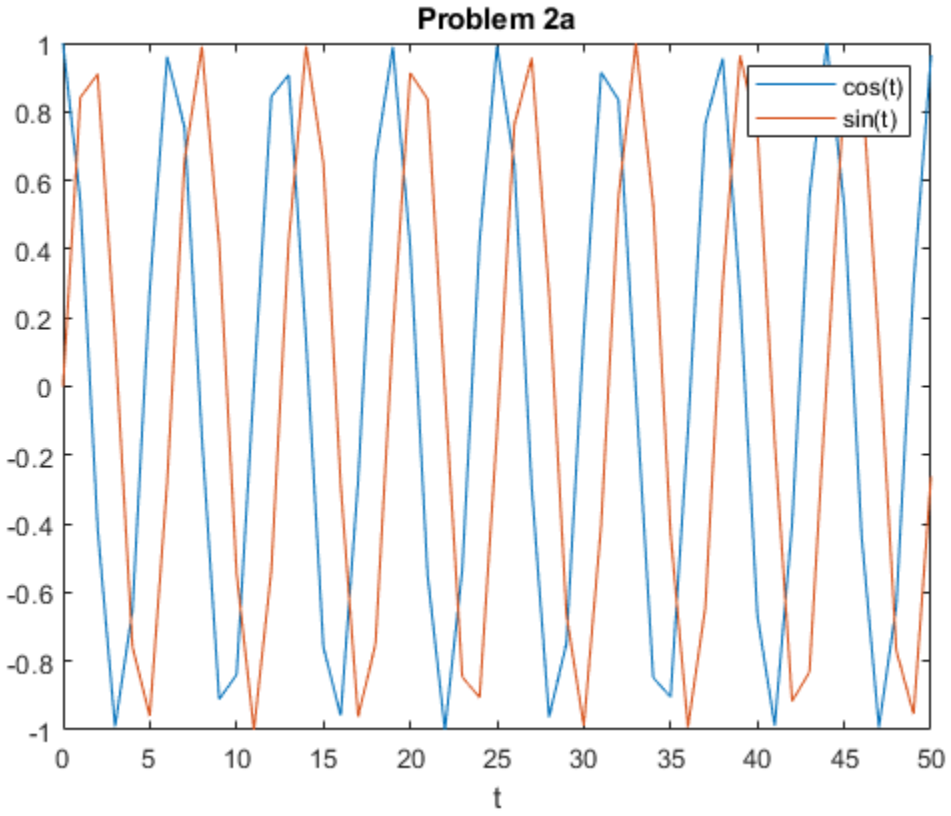
```
a = [2;5;8];
b = [3;13;8];
% 1.1
ansA = a + b
%ansB = a*b; %invalid operation
ansC = a.*b

% 1.2
a2 = [1 2 -3; 2 1 2; 4 -2 1];
ansA2 = a2 + b
%ansB2 = a*b;    %invalid operation
ansC3 = a2.*b
```

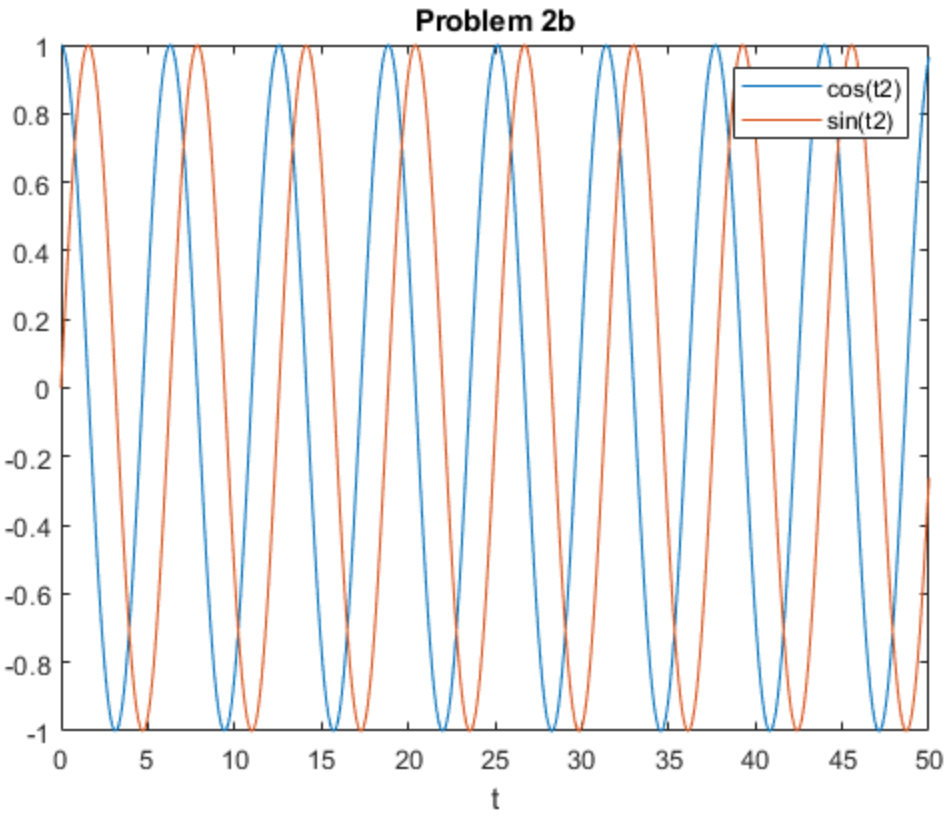
```
ansA =

     5
    18
    16


ansC =

     6
    65
    64


ansA2 =

     4     5     0
    15    14    15
    12     6     9


ansC3 =

     3     6    -9
    26    13    26
    32   -16     8
```

Problem 2

part a

```
t = 0:1:50;
y1 = cos(t);
y2 = sin(t);
figure(1)
plot(t, y1, t, y2);
xlabel('t'),legend('cos(t)', 'sin(t)');
title("Problem 2a");

% part b
t2 = 0:0.01:50;
y1b = cos(t2);
y2b = sin(t2);
figure(2)
plot(t2, y1b, t2, y2b);
xlabel('t'),legend('cos(t2)', 'sin(t2)');
title("Problem 2b");

%Q2 Answer
% Yes the signal looks a lot smoother after increasing the step. The first
% plot had very sharp lines the closer to 1 you were on the y-axis
```





Problem 3

```
% a1 = input('input the value for a1: ');
% b1 = input('input the value for b1: ');
% c1 = input('input the value for c1: ');
% d1 = input('input the value for d1: ');
% a2 = input('input the value for a2: ');
% b2 = input('input the value for b2: ');
% c2 = input('input the value for c2: ');
% d2 = input('input the value for d2: ');
% a3 = input('input the value for a3: ');
% b3 = input('input the value for b3: ');
% c3 = input('input the value for c3: ');
% d3 = input('input the value for d3: ');

a1 = 2;
b1 = 3;
c1 = 1;
d1 = 3;
a2 = 1;
b2 = 3;
c2 = -1;
d2 = 6;
a3 = 2;
b3 = 2;
```

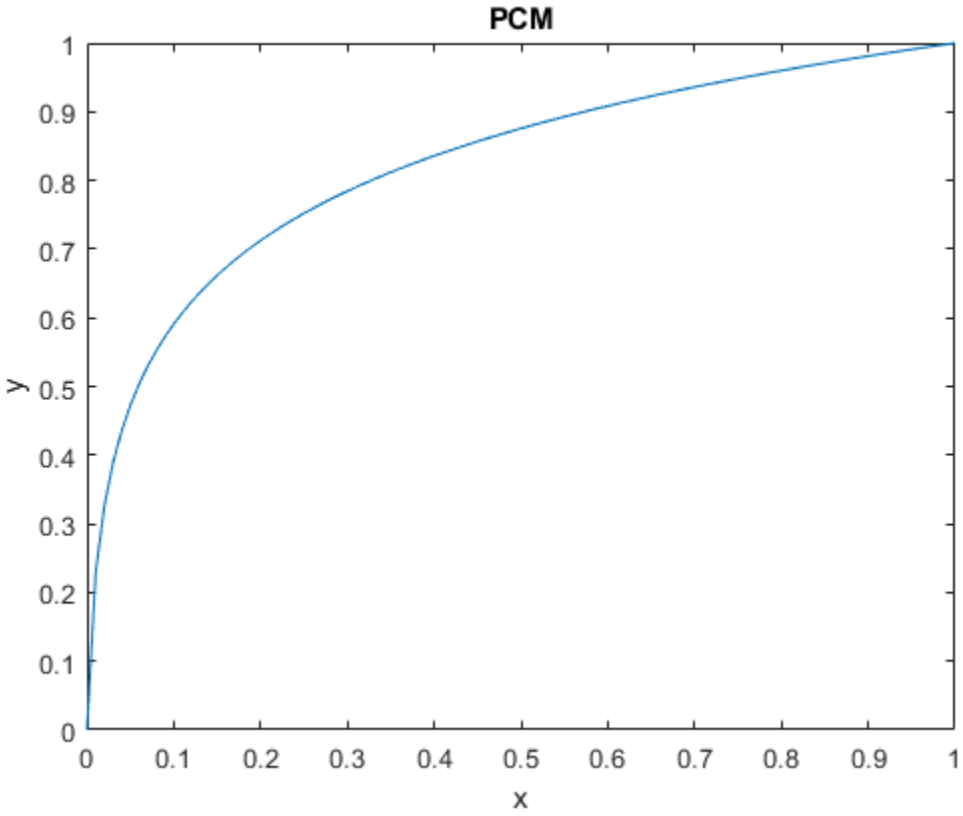
```
c3 = 0;
d3 = 7;

a = [a1 b1 c1; a2 b2 c2; a3 b3 c3];
b = [d1;d2;d3];

result = inv(a)*b
```

```
result =

    4.0000
   -0.5000
   -3.5000
```

Problem 4

mu = input('input value for mu: '); x = input('input value for x: ');

```
mu = 255;
x = 0:0.01:1;

y = log(1 + mu * abs(x))/log(1+mu).*sign(x);
plot(x,y), title('PCM'), xlabel('x'), ylabel('y');
```



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