Lab 02: Plotting in MATLAB
EE232: Signals & Systems

Muhammad Usman

February 20, 2018
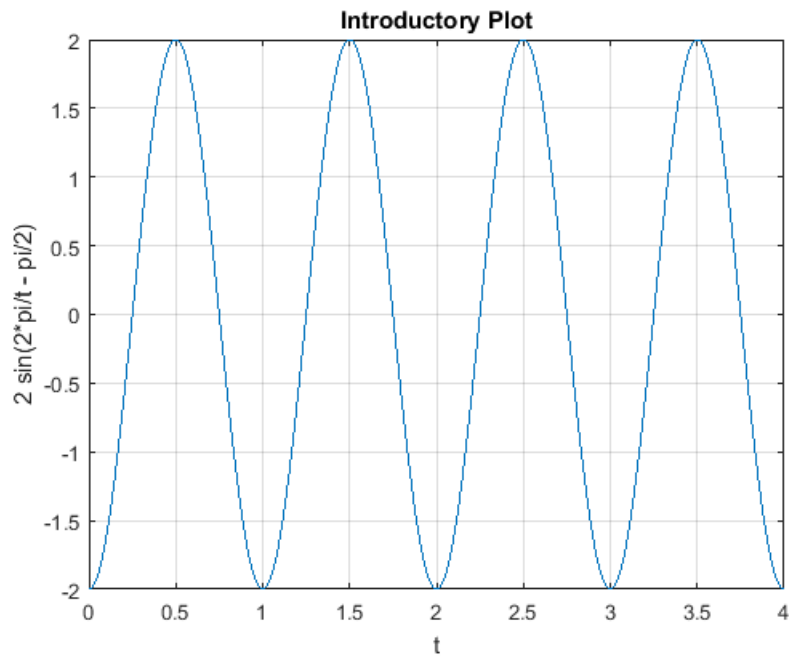
Contents

1 Plots

1.1 Equation

$$X = 2\sin(2\pi t - \frac{\pi}{2})$$

1.2 MATLAB Code

```
t_i = 0;
t_f = 4;

t = t_i : (t_f - t_i) / 1000 : t_f;
x = 2 .* sin(2 * pi * t - pi/2);

plot(t, x);
title('Introductory Plot');
xlabel('t');
ylabel('2 sin(2*pi/t - pi/2)');
grid on;
```

1.3 MATLAB Output
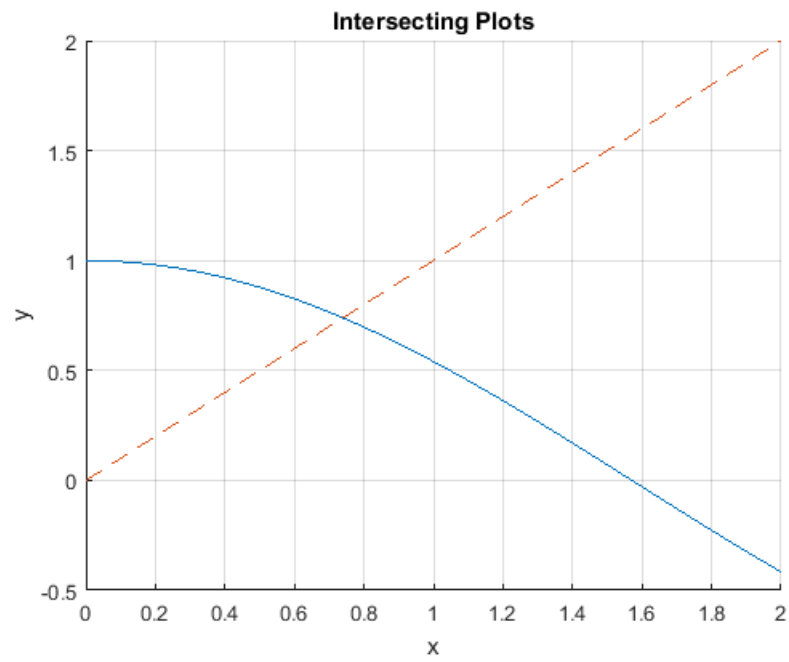
2 Intersecting Plots

2.1 Equations

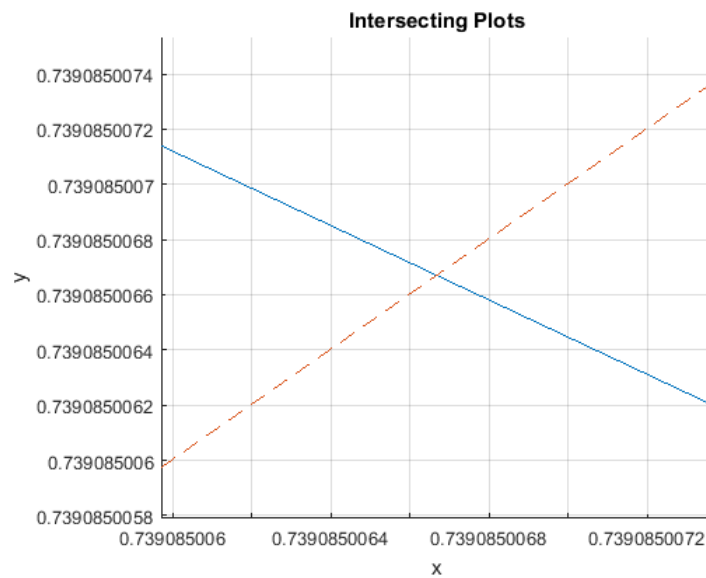$$y = \cos x$$

$$y = x$$

2.2 MATLAB Code

```
x_i = 0;
x_f = 2;

x = linspace(x_i, x_f, 1000);
y_1 = cos(x);
y_2 = x;

hold on;
plot(x,y_1);
plot(x,y_2, '--');
title('Intersecting Plots');
xlabel('x');
ylabel('y');
grid on;
```

2.3 MATLAB Output

2.4 Intersection Point

Intersection point after zooming in, can be observed to be *0.739* .

3 Subplots

3.1 Equations

$$y = \frac{\sin x}{x}$$

$$u = \frac{1}{(x-1)^2} + x$$

$$v = \frac{x^2 + 1}{x^2 - 4}$$

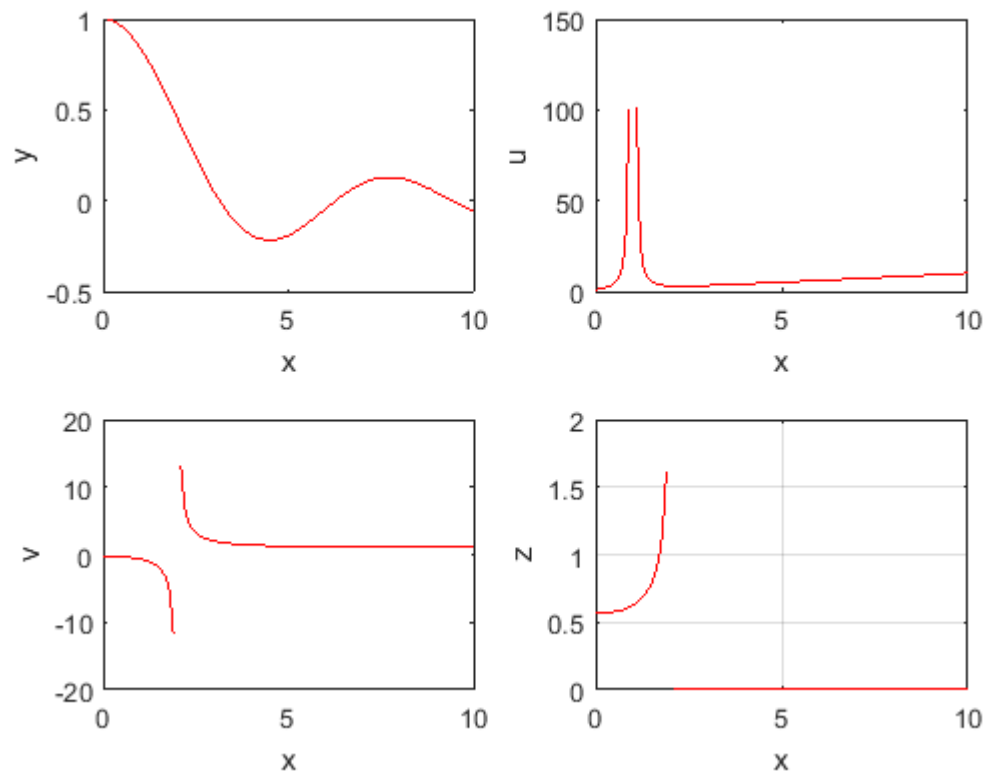$$z = \frac{(10-x)^{\frac{1}{3}} - 1}{(4-x^2)^{\frac{1}{2}}}$$

3.2 MATLAB Code

```
x = 0:0.1:10;

y = sin(x) ./ x;
u = (1 ./ (x - 1).^2) + x;
v = (x.^2 + 1) ./ (x.^2 - 4);
z = ((10 - x).^(1/3) - 1) ./ ((4 - x.^2).^(1/2));

subplot(2,2,1);
plot(x,y,'r');
xlabel('x');
ylabel('y');
subplot(2,2,2);
plot(x,u,'r');
xlabel('x');
ylabel('u');
subplot(2,2,3);
plot(x,v,'r');
xlabel('x');
ylabel('v');
subplot(2,2,4);
plot(x,z,'r');
xlabel('x');
ylabel('z');
grid on;
```

3.3 MATLAB Output

3.3.1 Warnings

```
Warning: Imaginary parts of complex X and/or Y arguments ignored
```