Al-Mustaqbal University
Dep. Medical Physics

Second Stage

Plotting in MATLAB

LEC9

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➢ SUBPLOTS

You can use the ***subplot*** command to obtain several smaller "subplots" in the same figure. The subplot command allows you to subdivide the graphing window into a grid of *m* rows and *n* columns. The function

subplot(m,n,p)

splits the figure into an *m* _ *n* matrix. The variable **p** identifies the portion of the window where the next plot will be drawn. For example, if the command

subplot(2,2,1)

is used, the window is divided into two rows and two columns, and the plot is drawn in the upper left-hand window (Figure below)

p = 1	p = 2
p = 3	p = 4

The windows are numbered from left to right, top to bottom. Similarly, the following commands split the graph window into a top plot and a bottom plot.

subplot(3,2,5)

creates an array of six panes, three rows and two columns , and directs the next plot to appear in the fifth pane (in the bottom left corner).

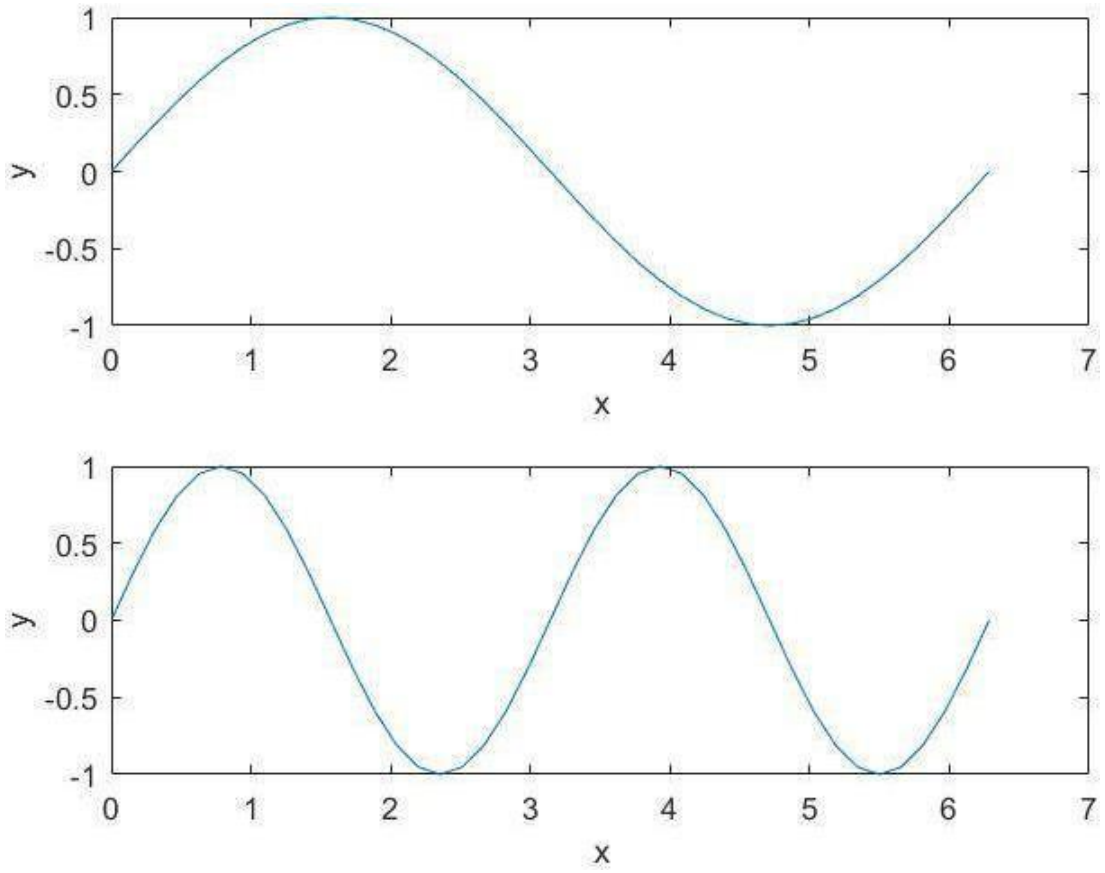
p = 1	p = 2
p = 3	p = 4
p = 5	p = 6

Example 1:

- Subdivide a figure window into two rows and one column.
- In the top window, plot ***y = sin(x)*** for x from 0 to 2π with increment of π/20.
- In the bottom window, plot ***y = sin(2x)*** for the same range.

```
x = 0:pi/20:2*pi;
subplot(2,1,1)
plot(x,sin(x))
xlabel('x'),ylabe
l('y')
subplot(2,1,2)
plot(x,sin(2*x))
xlabel('x'),ylabe
l('y')
```

The first graph is drawn in the top window, since p =1. Then the subplot command is used again to draw the next graph in the bottom window.



Example 2:

Use the subplot command to plot the functions (use an increment of 0.01):

$$y = e^{-1.2x}\sin(10x + 1) \qquad for\ 0 \le x \le 5$$

$$y = |x^3 - 100| \qquad for\ -6 \le x \le 6$$

```
x = 0:0.01:5;
y = exp(-1.2*x).*sin(10*x+5);
subplot(1,2,1)
plot(x,y)
xlabel('x'),yl
abel('y') x =
-6:0.01:6;
y = abs(x.^3-
100);
subplot(1,2,2)
plot(x,y)
xlabel('x'),yl
abel('y')
```

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