Formatting and Annotation

Add labels, adjust colors, define axis limits, change line styles, add markers

Labels

title	Add title
subtitle	Add subtitle to plot
sgtitle	Add title to subplot grid
xlabel	Label x-axis
ylabel	Label y-axis
zlabel	Label z-axis
legend	Add legend to axes
bubblelegend	Create legend for bubble chart

Annotations

comment added to a text or diagram.

text	Add text descriptions to data points
gtext	Add text to figure using mouse
xline	Vertical line with constant x-value
yline	Horizontal line with constant y-value
annotation	Create annotations
datatip	Create data tip
line	Create primitive line
rectangle	Create rectangle with sharp or curved corners
texlabel	Format text with TeX characters
ginput	Identify axes coordinates

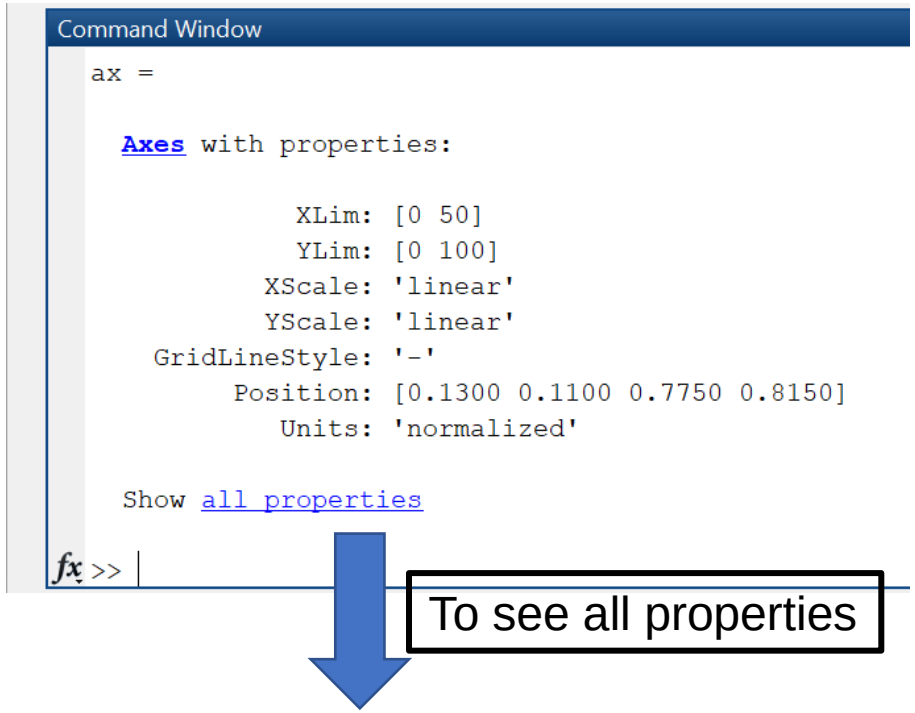
Axis control

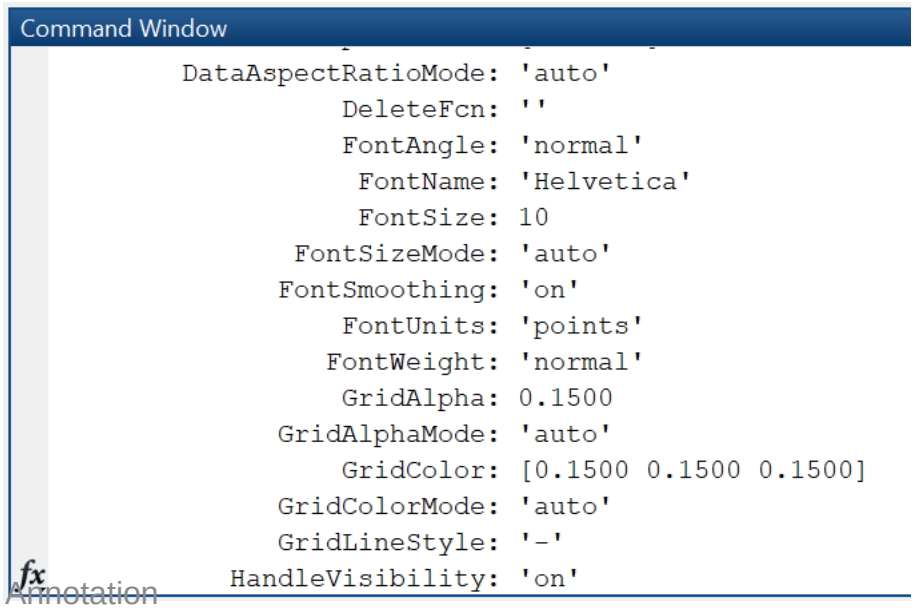
- Defines axis limits for plots

- >>axis([**xmin xmax ymin ymax**])
- % set the x axis from xmin to xmax
- % set the y axis from ymin to ymax

Change Font Size

- Axes **objects** have properties that you can use to **customize** the **appearance** of the axes
- Access the **current Axes object** using the **gca** function
- Then use dot notation to set the **FontSize** property
- >>**ax** = gca;
- >>**ax**.FontSize = 13;



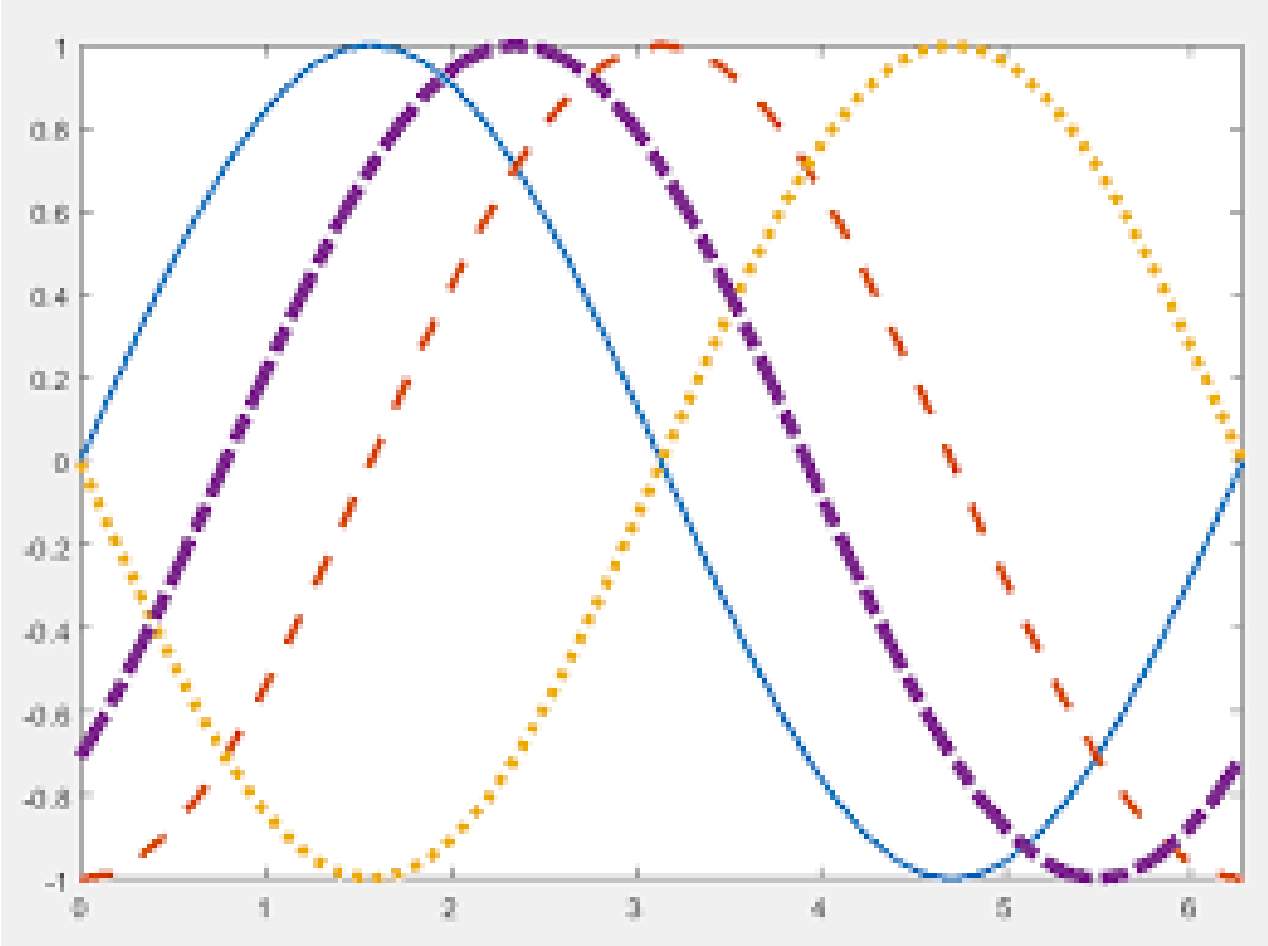


Change line appearance in plots

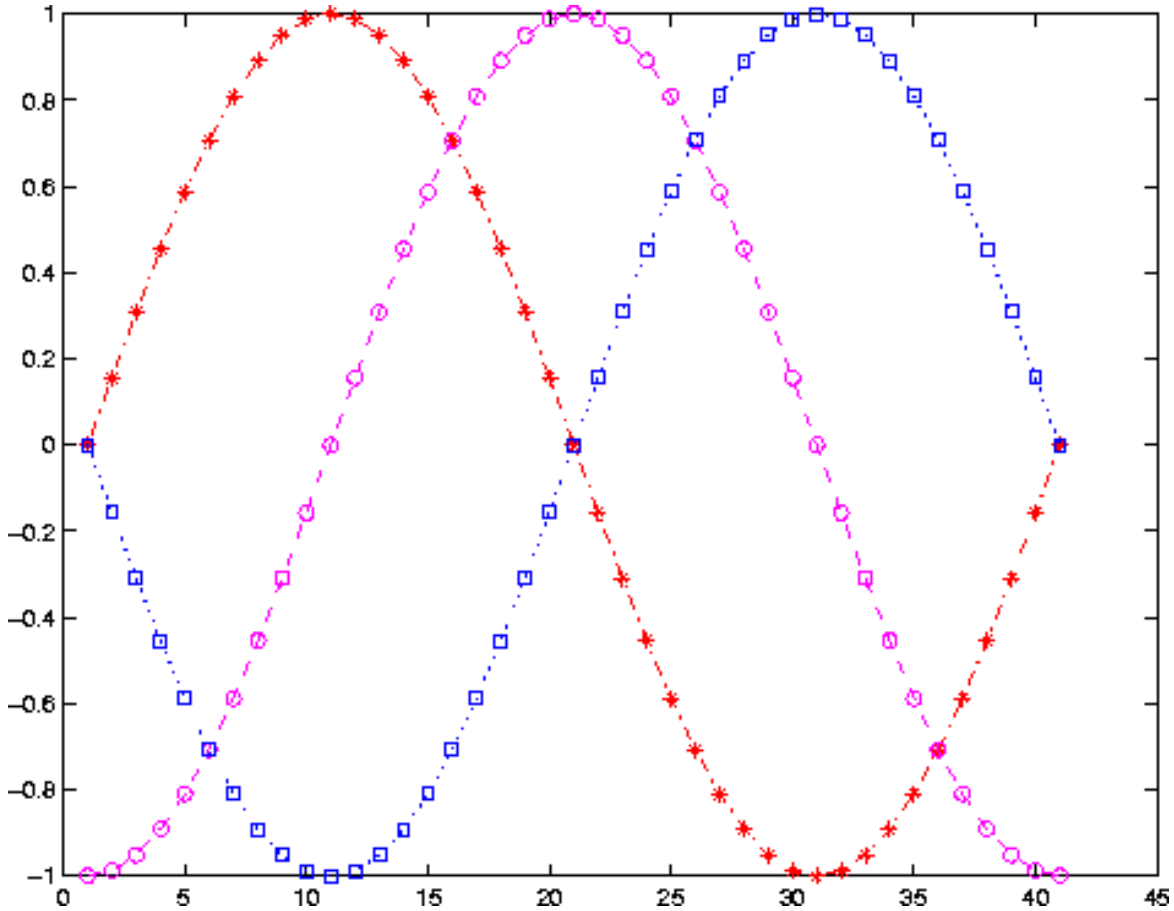
- Color and style of line can be changed by including an optional line specification when calling the plot function.
- Markers can be added in a similar way.

- Eg:
- ':' plots a dotted line.
- 'g:' plots a green, dotted line.
- 'g:*' plots a green, dotted line with star markers.
- '*' plots star markers with no line.

- The symbols can appear in any order.



Different Line Styles



Different Marker Styles

Specify Line Style, Color, and Marker

Color		Marker		Style	
b	blue	.	point	-	solid
g	green	o	circle	:	dotted
r	red	x	x-mark	-.	dashdot
c	cyan	+	plus	--	dashed
m	magenta	*	star	(none)	no line
y	yellow	s	square		
k	black	d	diamond		
		v	triangle (down)		
		^	triangle (up)		
		<	triangle (left)		
		>	triangle (right)		
		p	pentagram		
		h	hexagram		

MarkerIndices

- Indices of data points at which to display markers, specified as a vector of positive integers
- If you do not specify the indices, then MATLAB displays a marker at every data point

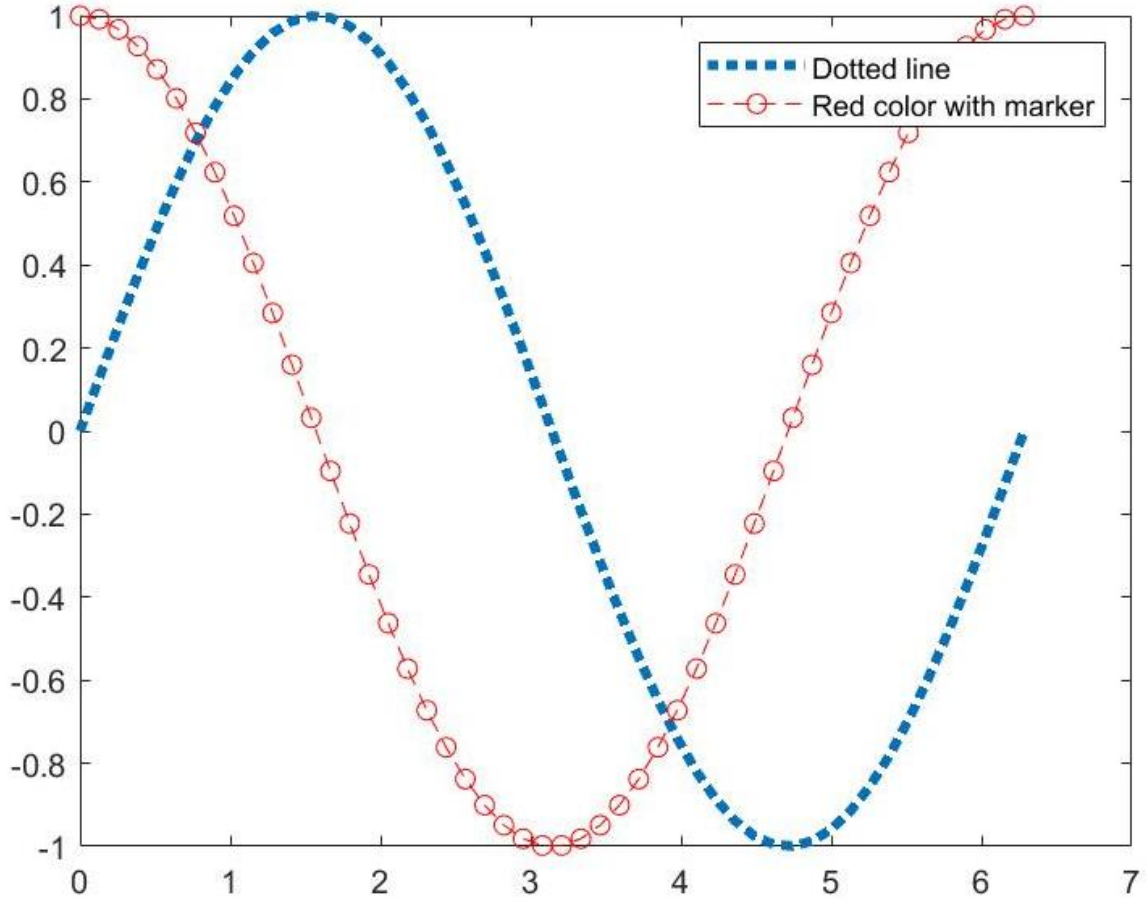
- >>plot(x, y, '-o', **'MarkerIndices**', [1 5 10])

- %displays a circle marker at the first, fifth, and tenth data points.

Example

- Plot a dotted line
- Add a second plot that uses a dashed, red line with circle markers

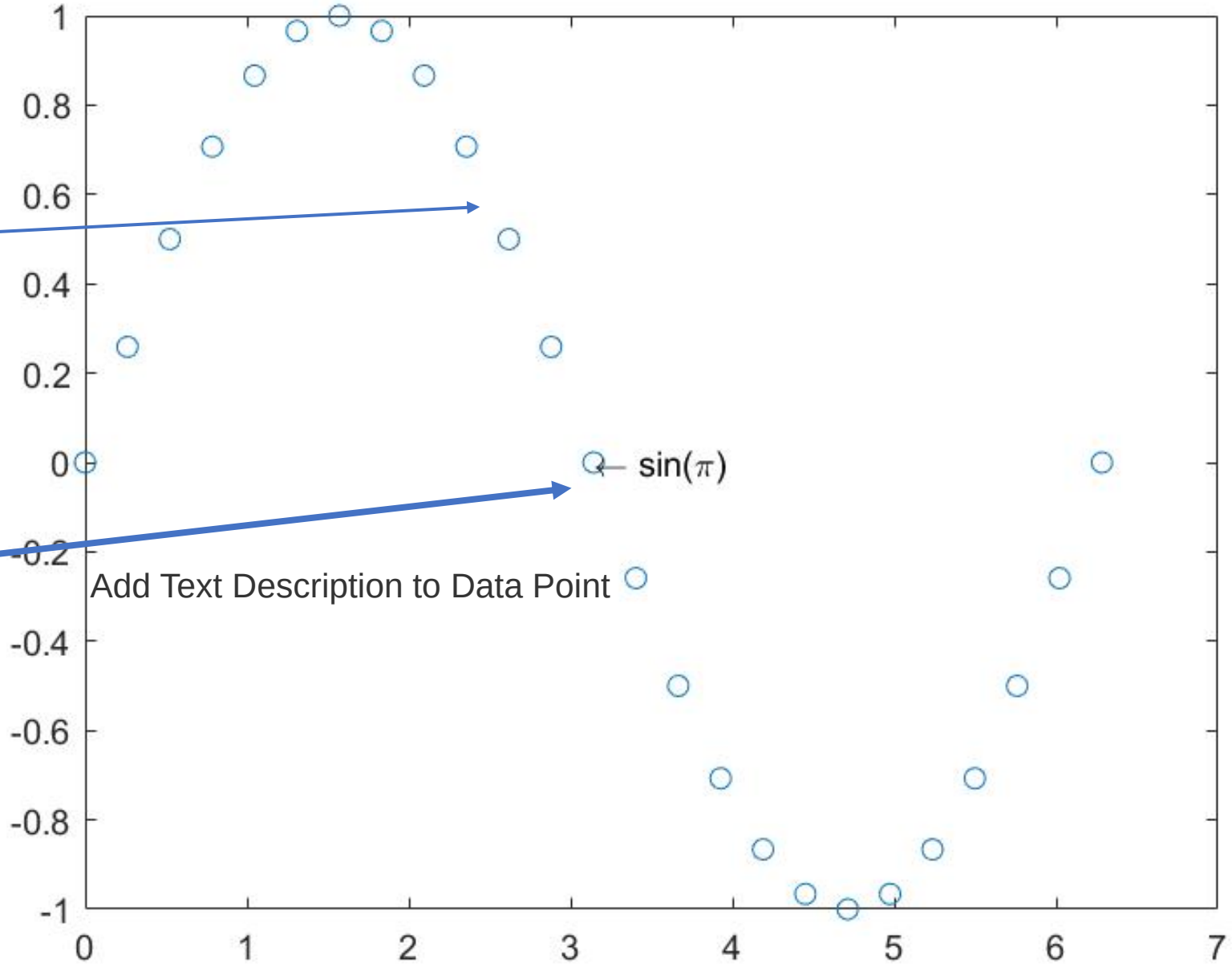
```
x = linspace(0,2*pi,50);
y = sin(x);

plot(x,y,':','Linewidth',3);
hold on

y2 = cos(x);
plot(x,y2,'--ro');
hold off

legend('Dotted line','Red color with marker');
```



Example

Plotting data points by omitting the line style option from the line specification

```
x = linspace(0,2*pi,25);
y = sin(x);
plot(x,y,'o');
text(pi,0,'\leftarrow sin(\pi)');
```



Change Line Object Properties

- Create a line plot.
- Assign the Line object created to the variable **ln**.
- The display shows commonly used properties, such as Color, LineStyle, and LineWidth.

```
ln.LineWidth = 2;
ln.Color = [0 0.5 0.5];
ln.Marker = 'o';
ln.MarkerEdgeColor = 'b';
```

Formatting a plot in the figure window

Once a figure window is open, the figure can be formatted interactively