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## Sheet (5)

[1] write the output of the given MATLAB commands:

(1)(a)  $x=-3:3$ ,  $\text{abs}(x)>1$ ,  $\text{abs}(x)\geq 1$ ,

(b)  $\text{abs}(x)<1$ ,  $\text{abs}(x)\leq 1$ ,

(c)  $\text{abs}(x)==1$ ,  $\text{abs}(x)\sim 1$ ,

(d)  $k=\text{find}(\text{abs}(x)>1)$ ,

(e)  $(x>2)|(x<-2)$ ,  $(x>2)\&(x<-2)$ ,  $(x\geq 1)\&(x\leq 3)$

(f)  $y=x(k)$ ,  $y=x(\text{abs}(x)>1)$ ,  $y=x(\text{logical}([1\ 1\ 0\ 0\ 0\ 1\ 1]))$

(2)(a)  $A=[1\ 2\ 3;4\ 5\ 6;7\ 8\ 9]$ ,  $(A>5)$ ,  $(A==5)$

(b)  $\text{find}(A>5)$ ,  $\text{find}(A==5)$

(c)  $[i,j]=\text{find}(A==5)$ ;  $[i,j]=\text{find}(A\geq 9)$

[2]  $x=1:0.01:10$ ,  $y=\sinh(x)$ ,  $z=\cosh(x)$ ,  $y1=10*x+15$ ;

1. Draw the relation between (x,y) and (x,z) in the same window.
2. Draw the relation between (x,y) and (x,z) in different windows.
3. Draw the relation between (x,y) and (x,y1) in the same window with a different y-axis.
4. Draw the relation between (x,y,z).

[3]  $x=0:0.01:10$ ,  $y=\sin(x)$ ,  $z=\cos(x)$ ,  $yy=\tanh(x)$ ;  $zz=\coth(x)$ ;

1. Draw the relation between (x,y), (x,z), (x,yy) and (x,zz) in the same window where these figures shape a matrix 2\*2.

2. Draw the relation between  $(x,y)$ ,  $(x,z)$  and  $(x,yy)$  in the same window where these figures shape a matrix  $2*2$  and the first figure take place at the first row

[4] Draw these complex numbers ( $z1 = 2+j0.5$ ,  $z2 = 1+j2$ ) using the rectangular and polar forms.

[5] What are the functions of the following MATLAB commands:

- (a) `plot(x,y)`, `plot(x,y,'ks-')`, `plot(x,y,'r^--')`,
- (b) `plot(x,y,'m>:')`, `plot(x,y,'gx-')`, `plot(x,y,'yo')`,
- (c) `hold on`, `hold off`, `hold`, `ishold`
- (d) `figure`, `figure(n)`, `close (n)`, `close`, `close all`
- (e) `subplot`
- (f) `xlabel`, `ylabel`, `title`, `legend`
- (g) `gtext`, `text`
- (h) `grid on`, `grid off`, `grid`
- (i) `box on`, `box off`, `box`
- (j) `axis([-10 10 -10 10])`, `axis square`, `axis equal`
- (k) `axis normal`, `axis (auto)`, `axis off`, `axis on`
- (l) `ginput`, `clf`
- (m) `meshgrid`, `mesh`
- (n) `disp(x)`
- (o) `input`, `str2num`, `num2str`,
- (p) `complex`, `compass`, `polar`